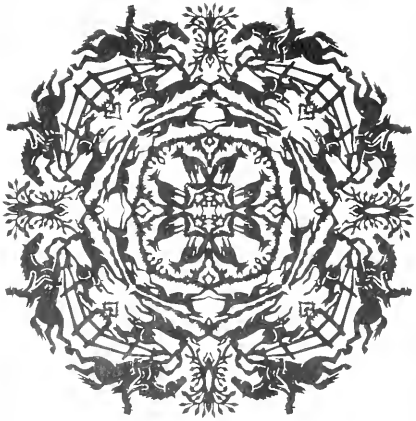
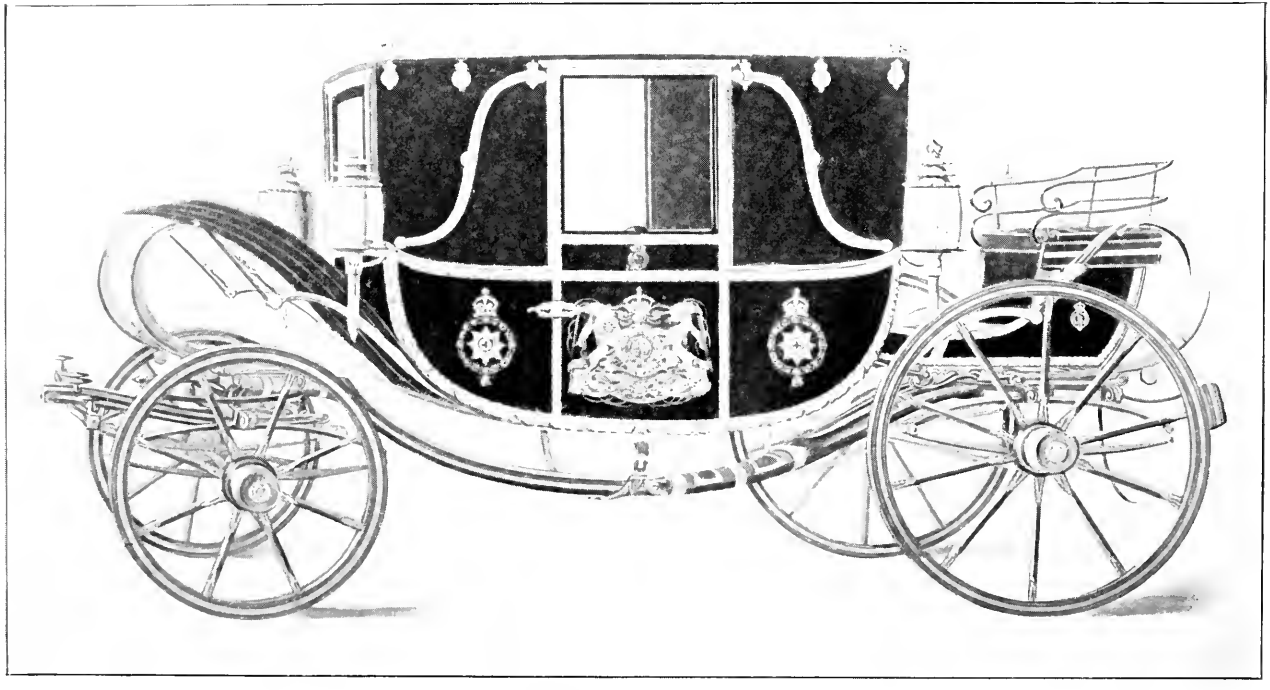


JOHN A. SEAVERNS

Webster Farm
Cummings School of Veterinary Medicine at
Tufts University
200 Westboro Road
North Grafton, MA 01536



H.M. King Edward VII.'s Coronation Landau.

MODERN CARRIAGES

BY

SIR WALTER GILBEY, BART.

AUTHOR OF

Riding and Driving Horses; *The Great Horse or War Horse*; *The Harness Horse*; *Young Race Horses*; *Horses Past and Present*; *Horses for the Army*; *Thoroughbred and other Ponies*; *Small Horses in Warfare*; *Hunter Sires*; *Horse Breeding in England and Army Horses Abroad*; *Early Carriages and Roads*; *Animal Painters of England*; *Life of George Stubbs, R.A.*

ILLUSTRATED

VINTON & Co.,

9, NEW BRIDGE STREET, LONDON, E.C.

1905

CONTENTS.

CONTENTS—*Contd.*

ILLUSTRATIONS.

* By Messrs. Hooper & Co.
† By Messrs. J. & C. Cooper.
‡ By Messrs. T. Peters & Sons.
§ By Messrs. Mulliner.

An endeavour is here made to trace from their origin the numerous forms of passenger carriage which were invented or were in use during the Victorian era, and to bring their history down to the present time.

A former work, "Early Carriages and Roads," dealt with the development of passenger vehicles from the date of their introduction into England until the coaching era.

Acknowledgments are due to Messrs. J. & C. Cooper, Messrs. Hooper, Messrs. Peters and Messrs. Mulliner, for leave to include their designs of various carriages.

Elsenham Hall,
Essex.

MODERN CARRIAGES

PASSENGER VEHICLES IN THE VICTORIAN ERA.

THE great improvements which were made in the roads of England during the earlier years of the nineteenth century produced, as one result, great changes in the method of building passenger carriages. These alterations were not only apparent in the coaches, post chaises and vehicles for travelling: taste had undergone marked change. The clumsy State carriages used by the nobility of the eighteenth century gradually went out of fashion, and from about the year 1800 coachbuilders had been endeavouring to produce a graceful outline of body, which body was made no larger than the convenience of the occupants required.

In every capital of Europe such carriages had replaced the old clumsy style of vehicle, and London and Paris supplied other countries with most of the new State carriages.

Carriages of all kinds were vastly improved during our late Queen's reign ; but for the parents of modern improvements we must look farther back. Mr. Obadiah Elliott's invention of the elliptical spring in 1804 was the foundation upon which countless improvements have been built.

Messrs. Elliott and Holbrook, of Westminster Bridge, appear to have been the pioneers of the movement which eventually dispensed with the heavy perch undercarriages. In the *Repository of Arts, Literature, Commerce, &c.*, of 1809, an eccentric landaulet built by this firm is described as "a thrilling example of the astonishing improvements which of late years have been made in every article of convenience and luxury."

This carriage was "distinguished by being without perch, wings, axle-tree beds, transom beds or plates, so that the weight is much reduced. It is more compact than carriages can be built on any other principle, and answers all the purpose of a crane neck, as it will turn in a smaller compass."

The famous Samuel Hobson began his invaluable labours about the year 1820. Mr. Phillipson says of this great coachbuilder that "he may truly be said to have improved

and remodelled every sort of carriage which came under his notice, especially as regards the artistic construction."

The year 1838 claims special notice in the annals of coachbuilding, for the reason that the Coronation of Queen Victoria was the means of bringing out a wonderful display of "Dress" carriages. It has been recorded that the vehicle of Marshal Soult the French Ambassador was generally considered to bear away the palm.

The advent of the railway brought about great changes in the build of carriages used; these were noticed in the carriage section of the Great Exhibition of 1851 in London.

The lack of private travelling carriages and of coaches for public service indicated the great change which had then made some headway and rendered those vehicles out of date; though ten or fifteen years earlier the stage coach, post chaise, family coach and chariot were in general use.

In the year 1860 a London coachbuilder wrote to Mr. Stratton, author of *The World on Wheels:* "Ten years have completed a total revolution in the carriage trade in England."

Not only have the Court and the nobility adapted economical habits, and insist on cheap carriages, but

they carry no luggage, as was formerly the case, when carriages had to sustain great weight, both of passengers and luggage. The cumbrous Court carriages of former times are being gradually abolished, and instead of the rich linings, laces, fringes, and elaborate heraldry usual to the carriages of the nobility, light vehicles, furnished only with a crest, are used. The changes in construction, and consequent depreciation of stock, were a heavy blow to the master coachbuilders; many of the large houses must have lost, in this manner, from ten to twenty thousand pounds. The trade, having recovered from this blow, is in a more healthy state. The favourite carriages in England at this time were wagonettes, sociables, Stanhope and mail phaetons, basket phaetons and landaus.

A second International Exhibition was held in London in 1862, after an interval of eleven years. The jury's report tells us that "the tastes and requirements for private carriages have evidently of late years taken a great change. The English department does not contain a single carriage fitted with a hammer-cloth, although still used by the aristocracy during the London Season."

CLASSIFICATION OF CARRIAGES.

It would be useless to attempt any popular classification of vehicles. We cannot divide them in groups as "Open Carriages" and "Closed Carriages," for the obvious reason that numerous conveyances of different kinds

are so constructed that they can be used either open or closed, as desired. Neither is it possible to arrange them in groups according to the draught power required, since the same carriage is very frequently fitted for one horse or a pair, or, in some few cases for a team. We may perhaps separate State or ceremonial carriages from vehicles for private use, though in drawing such a line of demarcation we should deal rather with the artistic and beautiful adornments of State carriages than with any conspicuous differences of shape and build that distinguish them from private vehicles.

Coachbuilders recognise one broad line of distinction between carriages of all kinds: (1) Those built with a perch; and (2) those built without a perch. It does not seem desirable to adopt the trade distinction in these pages, as the owner of a carriage is more concerned with the ease and comfort of the vehicle than with the means whereby that ease and comfort is procured.

The difficulty of dividing carriages into distinct groups or classes has increased during the last half century or more owing to the ingenuity of coachmakers, who have contrived to make one carriage adaptable for various purposes. Mr. G. N. Hooper

said, in a paper read before the Annual Meeting of the Institute of British Carriage Manufacturers, in 1899: "The system of altering the fittings and animal (or animals) according to what the carriages are built for, is becoming more frequent every year, and we may therefore conclude that buyers and owners of carriages find conveniences and advantages thereby. Forty or fifty years ago carriages built for one horse were used with one, just as carriages built for a pair were used with a pair." Adaptability goes farther than this; for we shall find opportunity to notice carriages which can be changed from two to four wheelers; but as these are comparatively rare we may divide our subject into two heads: Four wheeled and two wheeled vehicles.

Though fine upstanding carriage horses of sixteen hands or over are still eagerly sought and command long prices when found, the tendency to use lighter and smaller horses for harness has steadily continued down to the present day. Within the last fifty years the average reduction of the height of harness horses ranges from two to four inches. This diminished size produces changes in the carriage establishments of great houses, especially in the country, and in harmony

with the tendency to use smaller and lighter horses the coachbuilder has devoted his attention to the diminution of weight in the carriages to be drawn by them.

FOUR-WHEELED CARRIAGES.

TRAVELLING CARRIAGES.

At the beginning of Queen Victoria's reign, chariots, coaches and landaus, heavily built and mounted on C and under springs and stout wooden perches, vis-à-vis and britzkas, were the vehicles most generally used by private persons. The coachbuilding trade was divided in two distinct branches, one of which devoted itself to carriages for town use and the other to travelling carriages.

In rapidly reviewing the vehicles which have disappeared within living memory, we may glance at the old Travelling Carriages first. These were generally used without driving seats, the part that would have been occupied by a driver being appropriated to a travelling case for baggage; it was, however, very usual to construct the carriage in such wise that a movable driving seat could be used. The body was raised high on a perch under-carriage with C

springs and was drawn by two or four horses ridden postillion. Mr. G. N. Hooper (*Transition in London Carriages*, 1896) tells us that when he began his practical training as a coachbuilder in the year 1841, the business of Messrs. Adams and Hooper was almost entirely confined to the manufacture of the most complete and expensive travelling carriages for members of the English Royal Family and the great nobles of England and continental Europe.

These were constructed for two, four, or even six horses; weight was no objection; the aim of the coachmaker was to secure comfort and safety. That comfort and safety should be placed before lightness, we can well understand: the distances travelled were great and the time spent on journeys long. The pack-horse tracks and old watercourses which, as stated in a former work,* did duty for roads in the early days of wheeled traffic, had been greatly improved, but the roads other than the main roads were still often rough and bad, and a breakdown meant much discomfort and inconvenience, or worse. A heavy carriage

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* *Early Carriages and Roads.* By Sir Walter Gilbey, Bart. Vinton and Co., Ltd., 1903.

meant nothing more than a larger number of, or more powerful, animals, and the wealthy traveller would not sacrifice comfort for the sake of saving money in horse-flesh.

Special travelling carriages were built for the Royal Messengers, whose duty it was, as now, to convey important despatches from the British Foreign Office to Ambassadors at continental capitals. The endurance of a Royal Messenger in pre-railway days was often highly tried ; it might happen that State emergency required the officer to post from London to Dover, cross to Calais and then, taking post-horses. travel without delay or stoppage to Paris, Rome, or it might be across Europe to Vienna or Petersburg.

To do this the Royal Messenger had his own travelling carriage, which he kept at Calais. The documents or despatches carried were always of importance, and generally strictly secret, hence the bearer could seldom leave his carriage and his charge. It was not unusual for the Messenger to arrive at his destination in such a state of exhaustion that he had to be lifted out of his carriage.

A travelling carriage built by Messrs. Adams and Hooper for the Earl of Winchelsea in 1825, was constructed with the

box under the driving seat open to the interior of the vehicle, so that there was ample length for the traveller to lie down and sleep while on his journey. In this vehicle the folding steps were arranged to rest outside the doors out of the sleeper's way, instead of folding upon the carriage floor.

Travelling carriages were exceedingly well built. Owners of them have been heard to say on returning from a long journey or tour of from a month to two years, that not a stay, clip or bolt had shifted or broken ; the only matters that needed attention were the tyres of the wheels and the soles of the drag-shoes, which had been fairly worn out. One such carriage, built about the year 1830 for the 7th Duke of Beaufort, was among the collection of vehicles shown at the Horse and Horseless Carriage Exhibition at the Crystal Palace in 1896.

In the old days the Royal travelling carriages used by the Queen and the Prince Consort for the journey between Aberdeen and Ballater, over 50 miles, were regularly and carefully inspected in the Mews Quadrangle in London every autumn a few weeks before the Court went to Scotland. Each coach was filled, inside and out, with grooms

and stablemen who, acting in unison, tested the soundness of springs, braces and fittings, the poles were tried in, and the tool-boxes overhauled to make sure that everything, down to the smallest detail, was in perfect order.

THE CHARIOT.

The Chariot is another vehicle of the early Victorian age that has disappeared, though it remained until the later 'sixties. This was a close carriage with one seat for two persons; occasionally it had a driving seat in front and a rumble behind for servants. When used, as it often was, without a driving seat for travelling, it was called a post chaise and built, like the travelling carriage, on a perch and C springs; it was in some respects a modification of that vehicle.

Samuel Hobson was the great builder of chariots, and "Hobson Chariots" were equally famous for their admirable construction and artistic qualities. In 1891 Messrs. Hooper received for renovation the "Chariot" which Hobson had constructed over fifty years earlier for the then Duchess of Sutherland. It was, structurally, as sound then as the day it was built; heavier of course than modern vehicles are made, it

was a carriage that could not otherwise be bettered either in design or in artistic modelling.

THE VIS-À-VIS.

The Vis-à-Vis was a carriage built on the lines of a narrow coach ; it seated only two persons, face to face, whence its name, and was chiefly used as a dress carriage for ceremonial occasions, such as attending Court receptions. A writer in *All the Year Round* of 1866, says of this vehicle : "Among the carriages which have altogether disappeared since the Reform Bill (1832) is the *vis-à-vis*, essentially a Court carriage. It must have been the work of an inventor seeking the smallest result at the largest expense, as it had no apparent advantage over a chariot and was less useful."

THE BRITZKA.

The Britzka, introduced into England about 1818, from Austria, by Mr. T. G. Adams, and was very popular up to about the year 1845. It was hung both upon elliptic and C springs, and was built in various sizes ; the large britzka was in favour for family use, the smaller, with a rumble behind for travelling, and there was yet

a smaller make suitable for one horse. This last was a light open carriage, fitted with a leathern top over the front inside seat; which top had a glazed front and sides, or glazed front and Venetian blinds to the sides; it had also a glazed upper door which might be opened or closed independently of the lower door. The enclosure thus arranged, known as "German side lights," was a novelty at the time Queen Victoria ascended the throne, and quickly won popularity. A few years later the britzka came into common use in country towns and seaside resorts as a hack carriage, but it was eventually ousted in public favour by the one horse landau. The great objection to the britzka was that when used as a closed carriage, it was difficult to make the upper glass door slide up and down.

THE CAB PHAETON.

Another vehicle which went out of fashion in this country for many years is the Cab Phaeton, known on the Continent, where it has always maintained its popularity, as the "Mi lord." It was one of the inventions of Mr. David Davies, a Wigmore Street coach-builder, who was a prominent man in his calling in the earlier decades of the nineteenth

century. The vehicle had a cab-shaped body hung on four elliptic springs, with a low driving seat; it was built for one horse, and quickly became a general favourite all over England.

About 1850 it had become the hack carriage of continental cities, and its degradation to this capacity cost the cab phaeton its social standing. It was restored to favour in the 'seventies, and again in the London season of 1897 it re-appeared as a private vehicle somewhat altered in shape. The cab phaeton is said by the best authorities to be the original of the Victoria, introduction of which is popularly attributed to the late Prince Consort. More may be said about it therefore when we come to deal with that widely popular vehicle.

Those who study the shapes of carriages with expert eyes say that there is a singular tendency in the public taste to "throw back"; old designs and old forms are perpetually being produced as novelties, the producers being unaware that their creations have already enjoyed a term of popularity.

THE PILENTUM.

The Pilentum is a name unknown to the present generation of carriage owners. This

was a phaeton invented by the ingenious Mr. David Davies, and one that shared popularity with the Britzka and Cab Phaeton at the time of Queen Victoria's coronation. It was an open carriage hung on elliptical springs, very low and easily entered from the ground. The pilentum had something of the character of the cab phaeton, but it was built in different sizes for one horse or for two, and to carry four or six persons.

THE CLARENCE.

The Clarence, in its original form, is now rarely built. It was introduced about the year 1842 by Messrs. Laurie and Marner, of Oxford Street, and has been fairly described as "midway between a brougham and a coach." It had very curved and rather fanciful lines, seated four persons inside and was entered by one step from the ground, carried the coachman and footman on a low driving seat, and was used with a lighter pair of horses than the family coach.

It was always built without a perch, generally on elliptical springs. Mr. David Davies improved the Clarence by putting bent plate glass windows in place of the

front panel. This vehicle was popular, even fashionable, for a considerable time.

The first "Surrey Clarence" was built for Mr. Edward Lytton Bulwer (afterwards Lord Lytton) in the year 1850; it was painted brown with white wheels and the driving seat was covered with a brown and white hammercloth; it was built with great care, tastefully fitted up and well finished.

In the year 1850, too, Mr. Rock of Hastings, and Messrs. Corben of London, invented a composite vehicle which they called the "Dioropha"; it was shown at the Great Exhibition of 1851, and was a great advance in carriage building as being "a perfect Clarence coach." This carriage had in the front quarters side windows which would slide up and down. The whole upper part of the body from the elbow line could be lifted from the lower, leaving a barouche body. A ring or rings, secured to the roof, which was flat, allowed a rope to be attached, and a pulley in a beam of the coachhouse enabled this transformation to be easily accomplished. The upper part of the body having been thus removed a leathern hood could be adjusted over the back seat and a leathern apron flap to the fore part.

A smaller form of this vehicle invented by

Mr. Kesterton, was called the "Amempton." The last "Dioropha" was built in 1875; it was superseded by the improved landau.

The popularity of the Clarence was not long maintained among private carriage owners, but there is no more familiar vehicle than its direct, one-horse descendant, the London "growler," with its roof rail and chain for luggage. The name "Clarence" is almost forgotten and if used nowadays would be recognised by few as the proper designation of the humble four-wheeled cab of the hackney carriage stand and railway station. There was no reason why the Clarence should have continued popular; it was neither so comfortable as the coach nor so smart as the chariot, and the invention of the Brougham offered the private owner a vehicle which combined all the convenience of the Clarence with far more artistic merit.

BROUGHAMS.

The advantages of the Brougham, first built by Messrs. Robinson and Cook to the design of Lord Chancellor Brougham,* were

* Without questioning the title of Lord Brougham to the credit of having invented a new carriage, the writer of the article in *All the Year Round* of 1866,

recognised at once and the vehicle has held its high place among carriages ever since.

The great possibilities that lay in Lord Brougham's idea for "a refined and glorified street cab that would make a convenient carriage for a gentleman and especially for a man of such independence as one who carried his own carpet bag," were not recognised by Messrs. Sharp and Bland, the Chancellor's coachbuilders. When Lord Brougham took his idea to that firm, the originality of the design proved too much for them.

Messrs. Sharp and Bland had been in the habit of building family coaches, landaus, barouches, britzkas and chariots, which function carried with it certain ideas of rank, ceremony, dignity, independence and we add, prejudice. In short, they threw so many difficulties in the way that it was hopeless to get them to carry out the work satisfactorily, so his lordship called on some neighbours of theirs in Mount Street. Messrs. Robinson and Cook had

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previously quoted, says "The germ of the Brougham is to be found in certain street vehicles drawn by one horse in use in Birmingham and Liverpool forty years ago [*i.e.*, 1826], under the name of one horse cars."

not been nursed so thoroughly in the school of crystallised habit, obstruction and prejudice ; they accordingly accepted the idea and the order for construction with alacrity, civility and energy.

In his paper entitled *Transition in London Carriages* (1896), Mr. Hooper gives the exact date of completion of the first brougham. It was built, he says, under the personal directions of the inventor and was finished on May 15, 1838. The original brougham differed in many particulars of design, proportion, construction and finish from the modern carriage. The body was less refined in outline and less pleasing to the eye; it was several inches wider in front than at the back, and though both larger and heavier, was neither so comfortable nor so convenient ; the body was held together by heavy flat iron plates throughout, and the front boot was connected with the front pillars by strong outside iron stays, fixed with bolts.

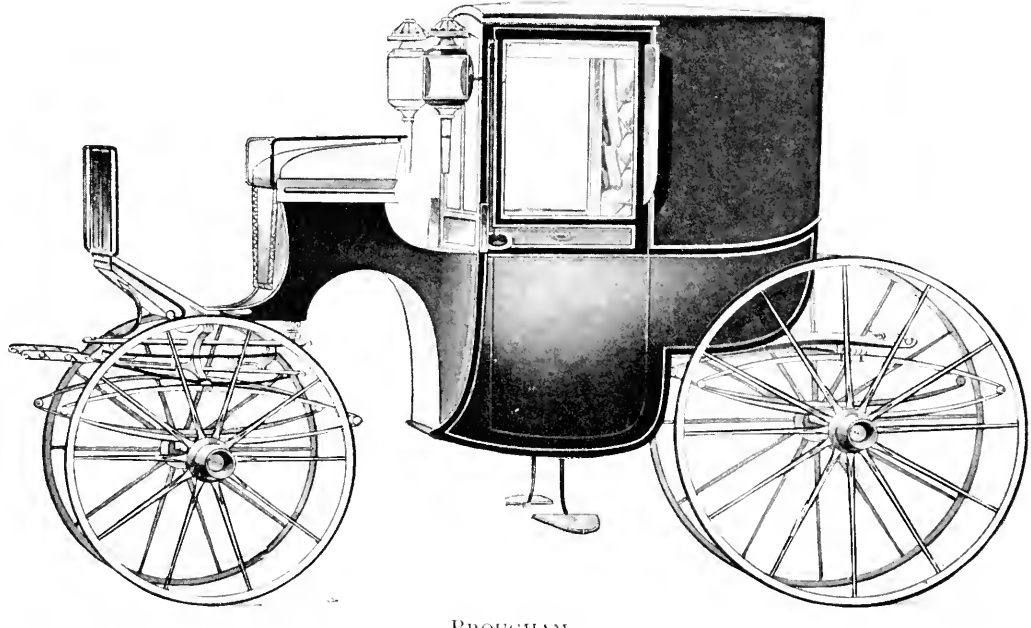
The wheels were at once smaller in diameter and much heavier. It carried a large guard or "opera board" at the back of the body to protect the occupants from risk of injury in a crush when the pole of a carriage behind might otherwise break

through the back panel—an accident now occasionally seen in our crowded streets. Like all other carriages of the time there was a sword case in the back panel for weapons. It was painted olive green, a very fashionable colour at that period. When Mr. Hooper examined the vehicle in 1894, part of what was presumably the original lining remained ; it was English "silk tabaret."

This carriage, which is now in the South Kensington Museum, is historical. Lord Brougham sold it in 1840 to Sir William Foulis ; subsequently it was bought by Lord Henry Bentinck, from whom it was bought by Earl Bathurst. It has been used by many famous statesmen, Lord Beaconsfield and Mr. Gladstone among the number.

To realise how great was the change brought about by the invention of the brougham we must remember that prior to this there did not exist a gentleman's covered carriage on four wheels for one horse. Such a vehicle was quite unknown in 1837, when Mr. Adams' instructive work on *Pleasure Carriages* was published.

A brougham similar to the original carriage was built by Messrs. Thrupp in the year 1840, and in a few years they were built



BROUGHAM.

by all coachmakers and proved so convenient that they superseded even the cabriolet for gentlemen's use. The size of the first brougham was about 4 ft. long in the body, and the same breadth, outside measure, the wheels 2 ft. 11 in. and 3 ft. 7 in., the driving boot made without any arch in a single sweep from the body to the foot board; it was hung on elliptical springs in front and five springs behind without any body steps.

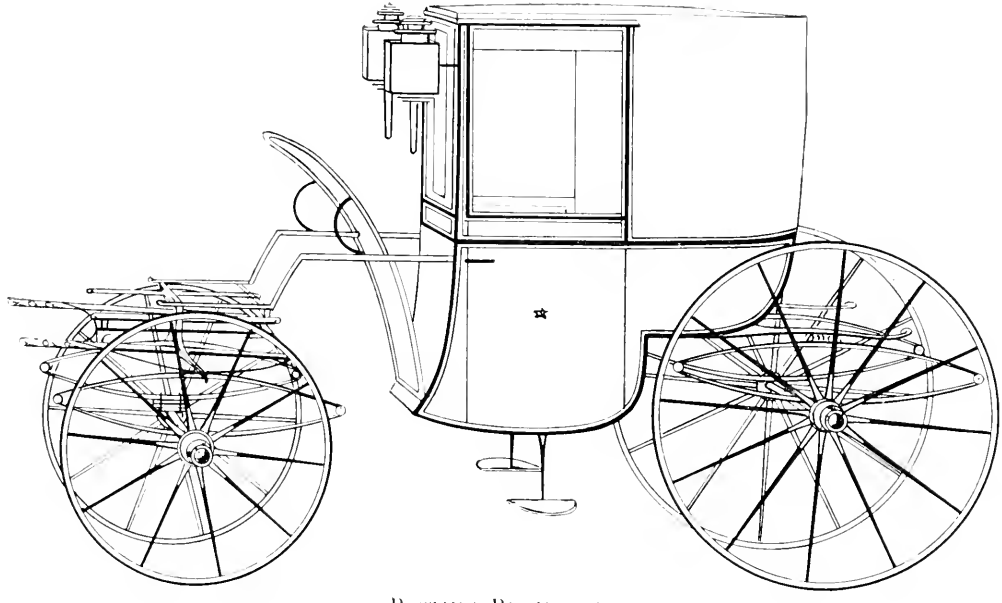
The first C spring brougham was made by Messrs. G. Hooper and Co., for the Marquis of Donegal (then Earl of Belfast), in the year 1845. The Marquis was not satisfied with the "equi-motive bow springs" patented by Mr. B. Adams, and had C springs, without a perch, applied to the hind part of the carriage. This arrangement failed to satisfy him, so Messrs. Hooper designed a perch undercarriage with regular C springs and leather braces on which the body was suspended. The perch was made of wrought iron * and this method of hanging a carriage proved so successful that it was adopted in the construction of many other vehicles.

* Mr. Phillipson, in his Prize Essay on the Suspension of Carriages, written in 1889, mentions that he had heard of two carriages at Vienna, each of which was built with two all-iron perches; these carriages were made for Napoleon.

The C spring brougham is still frequently seen, but for many years past preference has been shown for the lighter carriage hung on elliptical springs, and running on rubber tyred wheels. In the year 1893 taste in broughams and victorias favoured curved lines and substantiality of appearance. In both of these carriages there is a tendency to revert to the lines of some forty years ago; but in the brougham, as in the landau, there is a desire for reduced exterior dimensions and lightness in reality if not in appearance.

It is needless to say that a carriage so popular as the brougham has undergone many changes and improvements at various times.

Glancing briefly at some of the more recent improvements: in 1885 Messrs. Holmes of Derby, sent to the Inventions Exhibition a single brougham, with a leather instead of a wooden roof; it was ventilated by apertures in such wise that when the vehicle was in motion a continuous current of air passed between the roof and the lining; the object of replacing the wooden roof with leather was to secure less resonance or "drumming." This latter objection, however, has been minimised in closed car-



POSTING BROUGHAM.

Designed by Messrs. F. & R. Shanks.

riages by the use of rubber tyred wheels. At the same exhibition Mr. Mulliner showed a brougham hung on the Tilbury method; the object was to avoid the oscillation that accompanies the use of C springs and at the same time preserve the ease and comfort of a C spring body.

The illustration on the opposite page represents a "Posting brougham," which was built to the order of the present writer a few years ago. It is specially designed for country work, and is drawn by a pair of horses ridden postillion, the lever brake being controlled from the inside. A carriage of this type has advantages over the brougham furnished with the usual box seat which practically blocks up the front windows.

Some years ago the writer devised a method of ventilating the brougham which has been applied to his own carriages. This enables tobacco smoke to escape readily without causing a draught, and thus ensures purity of the atmosphere within the brougham when the weather obliges it to be closed.*

Broughams may be divided into "single," "circular fronted," and "double" broughams,

* Diagrams of this device will be found facing page 129.

which carry respectively two, three, and four persons inside. The single brougham is drawn by one horse, cob, or a pair of cobs ; the larger sizes are generally used with a pair of horses.

Where "smartness" is the first consideration the single brougham is distinctly the favourite at the present day ; the double brougham, with its square front to give the maximum of seating space, coming next in popularity. Of all our close carriages the brougham is the most generally used.

It is very usual nowadays to keep two sets of wheels for the same body ; one with rubber tyres for use on the wooden paving of the London streets, and the other set without rubber tyres for the macadamised country roads. In every establishment where more than one carriage is kept, the brougham, fitted to take a luggage-basket on the roof, or to be used without it for going to dinners, balls, parties or theatres is the most useful conveyance.

It is essentially *the* carriage of the medical profession, "the doctor's brougham" is a stock phrase. In so comprehensive an industry as coachbuilding, which is really a combination of several crafts and trades working together in harmony towards one

end, it is usual for a firm to make a speciality of one or more distinct types of carriage. Messrs. Barker have for many years been pre-eminent for their broughams.

FOUR-WEELED CABRIOLETS.

Four-wheeled Cabriolets for hire were introduced in London in the year 1836, by the "General Cabriolet Conveyance Company for London and Suburbs." This company was established, as we learn from contemporary journals, to provide "a cheap, expeditious, safe and commodious mode of conveyance in lieu of the present disgraceful and ill-conducted cabriolets." The prospectus of the new company draws a lurid picture of the hackney carriages it hoped to supplant.

The existing cabriolets, we are assured, were a "source of acknowledged disgrace, of many alarming accidents and of lamentable loss of life." From a less prejudiced informant, the *Monthly Magazine* of 1824, we learn that the two wheeled cabs of that period were very indifferent; a writer in that periodical, referring in laudatory terms to the omnibuses of Paris, says that no native of any other climate under the sky would tolerate such vehicles as the London hackney coach.

The General Cabriolet Conveyance Company attributed the danger of the existing cabs largely to the fact that they were two wheelers; and promises that the cabs it is about to put on the streets shall all be four wheelers, numbered for identification, with drivers in livery and drawn by good horses "instead of the wretched class of cattle" used in the old hackney cabriolets.

THE OMNIBUS.

The Omnibus is generally believed to have been the invention of Blaise Pascal, a Parisian man of letters, who conceived the idea of running public coaches, each to carry six persons, along certain specified routes of the French capital. The enterprise took practical shape in March, 1662, when Pascal, with the assistance of influential persons who obtained a royal patent for the privilege, put seven coaches on the streets.

The drivers wore a blue uniform, and the panels of each coach bore the royal device, the *fleur de lys*. The fare charged was five sous, or $2\frac{1}{2}$d. The new mode of travelling promised to be a great success; the coaches were so well patronised that two new lines of route were selected, and more coaches were put on and the fare was raised to 3d.,

but the death of Pascal, probably, caused the enterprise to be given up after two years. Mr. Thrupp (*History and Art of Coachbuilding*) suggests that the increase of hackney coaches and the prohibition of the use of the omnibus by soldiers, servants, or any one in livery, were probably contributory reasons to the cessation of Pascal's enterprise.

However that may be, the Paris omnibus ceased to run after two years. The first London omnibus is generally stated to have been put on the streets by Mr. Shillibeer, in July, 1829; but a vehicle which did the work of that useful conveyance was plying in London more than fifty years before Mr. Shillibeer produced his 'bus. The *Public Advertiser* of January 18, 1772, mentions a "new contrived coach" to carry fourteen passengers at 6d. each from Charing Cross to the Royal Exchange.

We are not told more about the build of this new contrivance, than that the hind wheels were 7 ft. high and the fore wheels 6 ft.; the object of this coach was to prevent the multitude of hackney coaches from crowding the streets. How long these coaches continued to run we have not been able to discover.

The possibilities of a public carriage of the omnibus kind evidently did not appear to the public of that period, for at the beginning of the nineteenth century the "short stages" brought city men, who did not keep gigs, from their suburban homes to their offices. In 1829, as before said, Mr. Shillibeer, who had been for a time a coachmaker in Paris, started omnibuses drawn by three horses, and carrying twenty-two passengers, to run from the "Yorkshire Stingo" near the bottom of Lisson Grove, Marylebone, to the Bank; the fare was 1s., and as the new omnibuses travelled faster than the other coaches they were well patronised.

These vehicles, however, were withdrawn after a time, being considered too large for the streets; in this connection it must be noted that all the passengers were carried inside, and the vehicles were therefore very capacious. The big 'buses were superseded by smaller ones drawn by two horses and carrying twelve passengers inside and one or two outside by the driver; the outside places, however, appear to have been very unpopular.

In 1830 several new omnibuses were brought into work on the Hammersmith Road by a Mr. George, who worked them

on the Shillibeer principle ; they ran regularly and punctually and the men were civil : which attractions secured for them so much patronage that rivals grew jealous, and eventually starved George's omnibuses off the road.

Hammersmith "unfortunately has not got the New Police yet," says a paper of the day ; and the process of starvation went on unhindered. The method adopted was to surround the objectionably punctual omnibus and its polite servants with two other 'buses and two coaches, so that passengers could not enter without danger and insult.

The Metropolitan Omnibus Association was founded in July, 1836, and was "supported by numerous residents in the line of the Commercial Road," who gladly encouraged this endeavour to improve cheap travel in the streets. The omnibuses in this quarter of the town were then very inferior, and very irregular, while the low character and frequent misconduct of drivers and conductors gave rise to many complaints. The *Despatch* of November 27, 1836, refers to the theft of a lady's purse by the driver and conductor of "one of Macnamara's Mile End Omnibuses."

The Kentish Town and Hampstead Improved Conveyance Company also started, in 1836, running omnibuses built on "an entirely new and improved principle."

Not until the year 1849 was the outside seat down the centre of the roof added; after this addition the London omnibuses steadily improved, but until the 'eighties these conveyances left much to be desired. The London General Omnibus Company was established in 1856; the Road Car Company in 1883. There was a remarkable increase in the number of omnibuses plying at very low fares during the period 1889-1892.

The year 1890 saw the beginning of that immense improvement of the outside accommodation, the removal of the old central seat and substitution of "garden seats": credit for the change is due to the Road Car Company. At the same time the steep and, for women, dangerous iron ladder was abolished; the door was discarded and a long footboard thrown out, whence a curving flight of steps gave safe, easy access to the roof.

The modern London omnibus is a triumph of carriage building. It is probably the lightest and strongest vehicle in the world

for carrying twenty-eight persons at a speed of nearly eight miles an hour. If tried with four horses on a country road they easily beat the old-fashioned stage coach, either in weight, capacity for carrying, durability or safety. The combination of strength and lightness is obvious; the upper panels of the body are practically all glass, yet the pillars which divide the windows, the front panel and back uprights support the roof, on which fourteen persons and the driver are seated.

Each of the large companies' omnibuses runs about sixty miles daily; each pair of horses makes one trip in the day, out and home. The London General has about 1,100 vehicles and keeps 14,000 horses, a considerable proportion of which are imported from Canada and the United States.

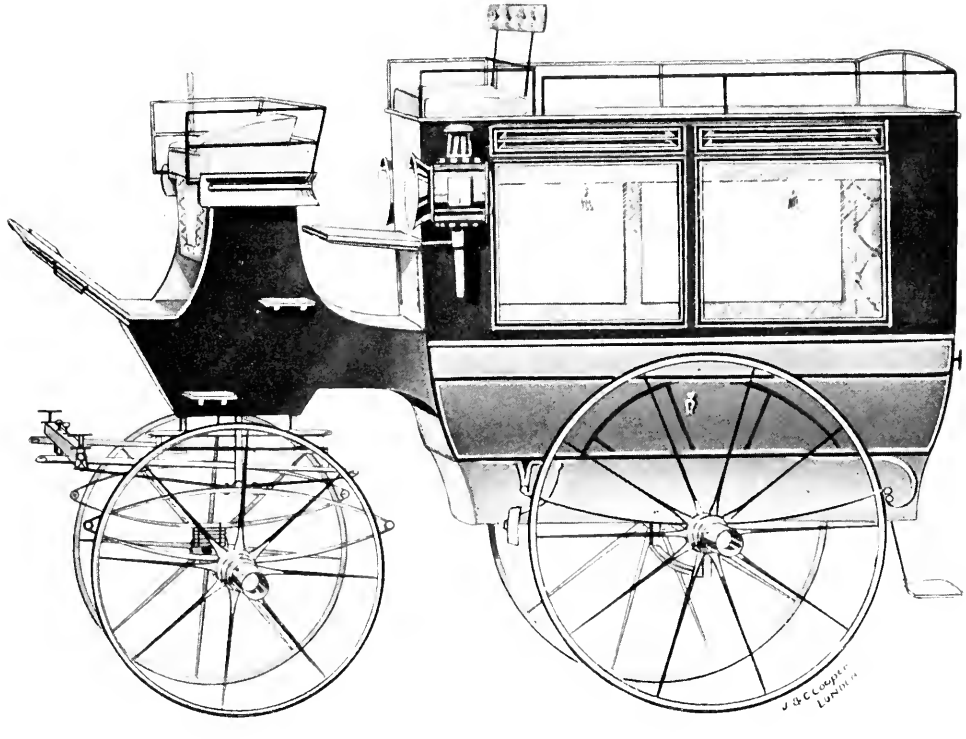
The omnibus is usually hung at the hind end by four scroll irons bolted to the bottom sides of the body; these are fixed to side springs. "Railway Springs" are used on some omnibuses in the London streets; these are set outside the wheels which revolve under the body which is cut away below the seats to receive them.

The public 'buses are drawn by one, two or three horses, as the size may require.

The single horse omnibuses which are used to convey passengers from or to the railway stations in Paris were introduced into London about forty years ago.

PRIVATE OMNIBUSES came into use about the end of the 'sixties, and are most useful carriages, whether for country or town. For large establishments the private omnibus may be called indispensable. The original private 'bus was furnished with a sort of rumble at the back for the footman; this has long been dispensed with, and the sole equipment of the back part is the single step for convenience of entry, which step is, like that of many other carriages, kept clean by the plate attached to the bottom of the door.

These carriages vary a good deal in size and build; they are constructed for two horses or for one; with seats on the roof or without. Of late years they have been greatly improved, being made lighter, more refined in appearance and style, more compact and handy and better ventilated. The system of ventilating the interior by means of apertures close under the roof appears to have been introduced by Mr. Cremmen, of Kentish Town, in 1897; previously slide windows under the driver's box admitted what little fresh air could penetrate.



PRIVATE OMNIBUS.

FOUR-WHEELED HANSOM.

A Four-wheeled Hansom, the invention of Mr. Clark an Aberdeen coachmaker, appeared in 1885. This conveyance had certain advantages: the body was shaped like that of an ordinary hansom, with the driver's seat attached to the back, but was turned round on the undercarriage so that the driver sat over his horse while the occupant faced to the rear; it could be used open or closed, the body being fitted with a shifting head for the purpose. A few of these vehicles were plying in the London streets for a short time but they did not commend themselves to the public, and have long since disappeared.

Having now passed in review the closed carriages which are, or which at some previous period have been, in general use, we may, before devoting attention to open carriages, turn to the more ambitious and imposing equipages.

THE COACH.

First of these must be placed the Coach, or Drag, as it is at least as frequently called. There is no vehicle which varies less in

shape and build than the four-in-hand coach ; the modern vehicle, save in unimportant accessories, differs but little from the old road coach of seventy years ago, either in body or undercarriage ; there have been changes and improvements in details of finish and appointment ; but regarded as a whole the drag of to-day is very much the coach of early Victorian times.

Nor is it difficult to understand why there should have been so little change. The brief "Golden Age" of fast coaching saw the vehicle of which such hard and continuous work was required brought as near perfection as human ingenuity and craftsmanship was capable of bringing it. No effort was spared to make the mail or road coach the best possible conveyance of its kind, and in retaining the model of a former age the modern coachbuilder confesses his inability to improve upon the handiwork of his progenitors.

The drag is built with a small coach body having large and deep boots ; it affords space inside for four passengers, but as a pleasure carriage accommodation is provided for fifteen persons outside, including the driver and his servants. It is hung on a wooden perch undercarriage with mail coach springs, and

often with mail coach axles; the general appearance of the vehicle is too familiar to require description.

After the railway train had driven the stage off the road the making of coaches for a time appears to have been practically suspended; for the jury's report on the carriage section of the International Exhibition held in London in 1862 refers to the "revival of an almost obsolete carriage, the four-in-hand coach, which had taken place within a few years." The coaches of the early 'sixties were "generally built on the model of the best mail and stage coaches of former times but with a much higher degree of finish."

The revival referred to was no doubt due in great measure to the establishment of the Four-in-Hand Driving Club in the year 1856; the popularity of driving a team has been more than maintained and the coaches which, during the summer, run from London to Windsor and other towns are well patronised. In 1878 Her late Majesty's Commissioners for the Paris Exhibition mentioned *apropos* of coaches, that the taste for driving a four-in-hand had much developed; from 350 to 400 drags had been built in London during the preceding

ten years, and these had been ordered not only by purchasers in England, but had been sent to Egypt, Italy, the United States and other countries. It may be added that at that date there was a Four-in-Hand driving club in New York, ten or twelve members of which drove English drags.

STATE CARRIAGES.

In State Carriages we find workmanship, art and finish combined in the highest degree. Some reference was made in an earlier book* to the famous State coach built in 1761 for George III., and used by our sovereigns down to the present time; hardly less magnificent than this old coach is the new State landau built by Messrs. Hooper for King Edward VII., and first used by him on the day of his coronation procession through London.

This magnificent example of the coach-builders' art is over 18 ft. long. The body is hung upon C springs by strong braces covered with ornamentally stitched morocco; each brace is joined with a massive gilt

* *Early Carriages and Roads*, by Sir Walter Gilbey, Bart. Vinton and Co., Ltd., 1903.

buckle with oak leaf and crown device. Between the hind spring is a rumble for two footmen ; there is no driving seat as the carriage is intended to be drawn only by horses ridden postillion. The panels are painted in purple lake considerably brighter than is usual in order to secure greater effect ; marking the contours of the body and the outlines of the rumble are mouldings in wood carved and gilt, the design being one of over-lapping oak leaves.

The door panels, back and front panels, bear the Royal Arms with crown, supporters, mantle, motto, helmet and garter. On the lower quarter panel is the collar of the Order of the Garter, encircling its star and surmounted by the Tudor crown. Springing in a slow graceful curve from the under part of the body over the forecarriage is a "splasher" of crimson patent leather. Ornamental brass lamps are carried in brackets at each of the four corners of the body.

As regards the interior of this beautiful carriage it is upholstered in crimson satin and laces which were woven in Spitalfields ; the hood is lined with silk, as better adapted than satin for folding. The rumble is covered with crimson leather. It is to be

observed that with the exception of the pine and mahogany used for the panels, English grown wood and English-made materials only have been used throughout.

While less ornate than the wonderful "gold coach" designed by Sir Wm. Chambers and Cipriani in 1761, the new State landau, in its build, proportions, and adornment, is probably the most graceful and regal vehicle ever built.

The State Coach of the Lord Mayor of London comes only second to that of the sovereign in magnificence. The old State Coach, familiar to generations of Londoners, was finally discarded in 1887, when a new one was completed by Messrs. Offord and Son, Ltd., for the use of Sir Polydore de Keyser, during the Jubilee ceremonies. This coach is hung on C and under springs with swan necked double steel perch, giving "full lock" to enable the carriage to turn in the narrower City streets. The brass and gilt work is very massive, and the panels are adorned with both the national and civic emblems. Especially noticeable is the rose, thistle and shamrock, of the solid roof cresting; the lamps are of chased brass of very fine workmanship. The interior is upholstered with blue and gold silk.

Messrs. Peters, of Upper George Street, Portman Square, built a very beautiful coach for Sir Marcus Samuel during his occupation of the Civic chair in 1902-3. They furnish the following description of the vehicle :

"Shape that of the usual 'town coach,' but of a larger size: all the upper (or 'quarter') panels furnished with glass in covered frames, suspended by four snake-head body loops, gilt, on C and under springs and perch and stout leather braces. The hammercloth, which is supported on a Salisbury boot, is trimmed with claret-coloured cloth and crimson silk and bullion fringe, and has a medallion with the City Arms and crest on each end. Footman's standard to the head part.

"The coach is painted lake picked out with crimson. The City Arms and supporters are emblazoned on the door panels and back; the Arms of the Spectacle Makers and Gardeners Companies on ornamental shields are painted on the four lower quarter panels: the Lord Mayor being a member of each of these livery companies. The interior is upholstered in white silk brocade with broad crimson silk laces, velvet pile carpets. It is fitted to carry four large brass chased lamps, each of which has the City crest on the top; the door handles are chased; there is a brass cornice round the roof, and the pole hook and nave hoops are of brass."

Two chariots for the Sheriffs of London, built within recent years, by Messrs. Thrupp and Maberly, also deserve notice. One was painted a rich blue, both body and undercarriage, the body being suspended from

handsome brass plated snake loops. The door panels bear the City Arms, the Spectacle Makers Arms adorned the back and hind quarter panels, and the owner's Arms and crest were painted on the back, front and door rails. The linings were of rich dark blue silk tabaret, and the roof was lined with blue satin; the curtains were of blue silk with blue and gold tassels: all the lace used was gold in colour.

The other chariot is very elegant in shape, the lower panels painted myrtle green with richly gilt mouldings, while the undercarriage and wheels were painted light emerald green with a broad line of gold edged with black. The door panels bear the City Arms and the Arms of Middlesex.

Some of the State carriages which are built for Indian Princes are marvels of extravagance. Messrs. Stewart and Co., of Calcutta, in 1882, built to the order of H.H. the Maharajah of Jheend, a State phaeton. It had coach box and rumble which, as well as the body, were fitted with hoods. The panelling, mouldings, ironwork, springs and pole, the whole structure in fact, were encased in silver plates, and the lamps, splash boards and wings were also of solid silver. The silver plating was adorned with

wreaths of lotus flowers, peepul leaves richly chased and gilt. The interior was upholstered in rich blue silk tabaret, embroidered in gold. This wonderful vehicle was so constructed that if the Maharajah wished to handle the reins himself the coach box could be removed and the fore and hind wheels brought nearer together; this transformation was accomplished by means of a double undercarriage.

Less ambitious was the "semi-State" barouche with rumble built for H.E. Jeet Jung Bahadur, Commander-in-Chief of the Army of Nepaul. The body was painted green and finished off with fine lines and mouldings, and embellished with silver wreaths of lotus flowers and peepul leaves chased and gilt; the lamps and rails were silver plated. The owner's armorial bearings, with mottoes in the Sanscrit tongue, adorned the door panels.

LANDAUS.

The Landau, named after the German town where it was invented in 1757, is, and for sixty years has been, one of the most popular of carriages. Seventy years ago this was a heavy and expensive vehicle on a

perch undercarriage with C springs ; the hood would only open half-way and there were other defects.

The possibilities of the landau attracted the attention of Luke Hopkinson, a coachmaker of repute, who carried on business in Holborn at the time the brougham was ousting other closed carriages ; and about the year 1838 he produced what he named the britzka landau, which was a vast improvement on the form then existing. In this vehicle the hood was so constructed that it could be laid nearly flat when opened, and the floor and seats of the body were raised six inches to give the occupants more elbow room and air. This new form of landau was recognised at once as the carriage best designed to replace the old family coach.

Mr. Laurie contrived fresh improvements, and other coachmakers have followed in his footsteps. It may truly be said that if the landau be a foreign invention all the alterations which have made it the most popular of carriages were made in England.

The landau of the 'fifties and earlier was always hung on a perch undercarriage with C springs. A trade journal says of the " Elcho Sociable Landau " which was in use

in those days: "Its graceful outline and roominess make it the very beau ideal of vehicular luxury." It had become what the dress chariot was some years before, "the handsomest C spring carriage out." The perch was dispensed with when builders set themselves the task of reducing the weight, and for the last twenty years few perch hung landaus have been used. The usual method now of hanging the body is by elliptical springs in front and elliptical or the "five springs" (side, elbow and cross) at the back; more recently C springs without perch have been used.

At the Exhibition of 1862 it was reported that "in consequence of the many improvements effected in the manufacture of landaus, the chief of which is the great reduction in weight, the demand for them has already increased. They are well suited to the variable climate of the British Isles, as they can be readily changed from an open to a closed carriage and *vice versâ*."

Since these words were written ingenuity has been constantly at work upon the landau; the improvements of Messrs. Rich and Messrs. Morgan have been among the most important, but it would be impossible to notice in detail all the clever and ingenious contriv-

ances which combined make this carriage what it is become. There are numerous patent methods for opening and closing the head only.

The Sefton landau shown at the Inventions Exhibition of 1885 was first built for the Earl of Sefton and named after him. It was a wonderful contrast to the landau of ten or fifteen years earlier; the carriage of the sixties and seventies was still large and heavy, measuring over six feet along the elbow line, weighing three quarters of a ton or even more, and of course requiring a strong pair of horses. The Sefton landau made by Messrs Hooper, represented the new style, a light and graceful carriage that one horse can draw. The change indicated by this light landau was much greater than might be supposed. "That an old established house with an aristocratic connection should exhibit a landau for one horse would have been considered incredible twenty years ago," remarks a trade journal commenting upon the exhibits.

The preference for lighter and smaller carriages has been marked for many years; the scarcity and cost of good upstanding carriage horses may in some measure account for it.

Fashion is as fickle and uncertain in the shape of carriages as it is in other matters. The angular build of landau was in vogue for some years; then about 1887 the tendency to adopt the more graceful curving lines, best exemplified perhaps in the "canoe" landau, became marked, the hard angular shapes falling out of favour. It is hardly necessary to observe that such changes come about very slowly; the numbers of persons who discard a good carriage because there are symptoms of a change that will make its shape unfashionable are very few.

The taste for "curvilinear" designs, to use the coachbuilder's expression, continues to the present day. At the carriage section of the Royal Agricultural Society's Show at Maidstone in 1899, it was remarked that the canoe landaus very greatly outnumbered those of the square or angular variety. The latter, by the way, are called Shelburne landaus, after the Earl of Shelburne who had the first one of that shape built.

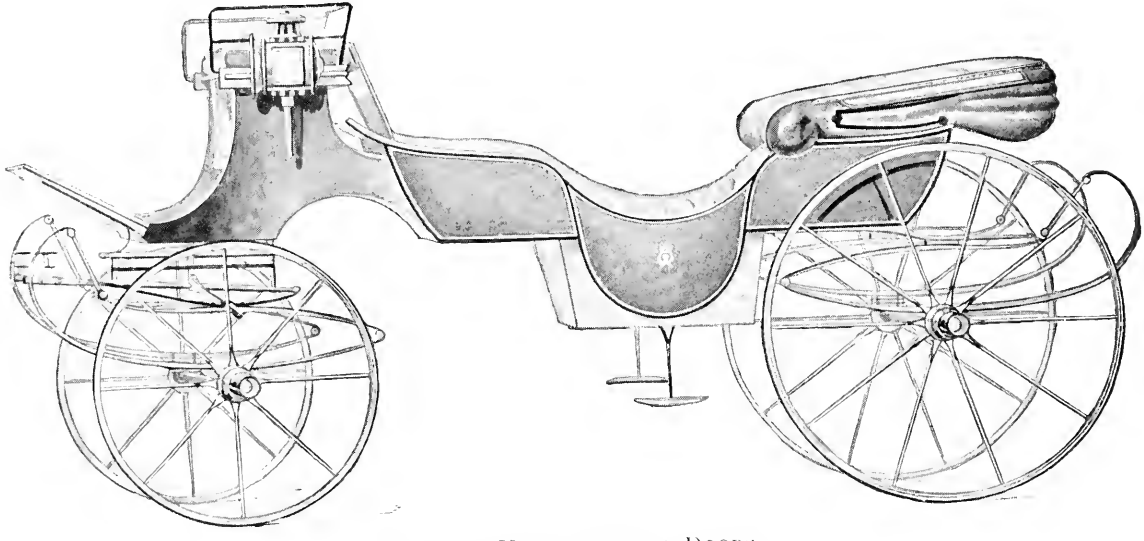
The canoe bodies are now made a good deal deeper, while the angular bodies are more massive than formerly was the case. The former shape is the favourite with people of moderate means; the latter with the more wealthy classes. The old-fashioned two horse landau has practically disappeared.

The advantages of the landau make it one of the most widely used carriages both among private owners and on the public stands; in its modern form the one horse landau superseded the britzka cab phaeton and the "Dioropha." "On all the cab ranks in English and Continental towns and railway stations that I have seen for the last six years," says Mr. Thrupp, in an address delivered in 1895, "excepting London, I find that the landau has become the favourite carriage."

In private establishments the victoria is its only rival, if we may draw an inference from the proportions of the carriage section at the Inventions Exhibition in 1885. Of seventy-four vehicles of all kinds, thirteen were landaus and thirteen were victorias; hansoms and dogcarts ranked next, nine of each being shown.

VICTORIAS.

The Victoria was introduced from Paris into this country by His Majesty the King, when Prince of Wales about the year 1869; but there is evidence to show that this deservedly popular carriage was designed by an English builder, Mr. J. C. Cooper.



DOUBLE VICTORIA WITH DOORS
(On "Morgan" Cee springs), for Pair of Horses.

The writer of an article in the *Coach-builders' Art Journal* of 1885, says that Mr. Cooper "designed both the curved and the angular victoria, and the original drawings remained some time in his portfolio, condemned by the conservatism of English coachbuilders; they at length found favour in the eyes of his continental clients, and we believe we are correct in stating that the first little vehicle built from them was purchased by the Prince of Wales in Paris, in 1869, whence it was brought to England and copied as a novelty of French design." Mr. Thrupp, in his *History of Coaches*, says that the victoria brought by the King from Paris was of the curved shape, while Baron Rothschild brought from Vienna one of the square build.

A design of the vehicle as built in 1845 was called in Paris a *cabriolet a 4 roues*,* or four-wheeled cabriolet. It is seated for two only, and has no servants' seat at the back. A later model, dated 1856, is described as a "Victoria." This has a hinged seat to provide space for a third passenger, and has also a seat for servants behind.

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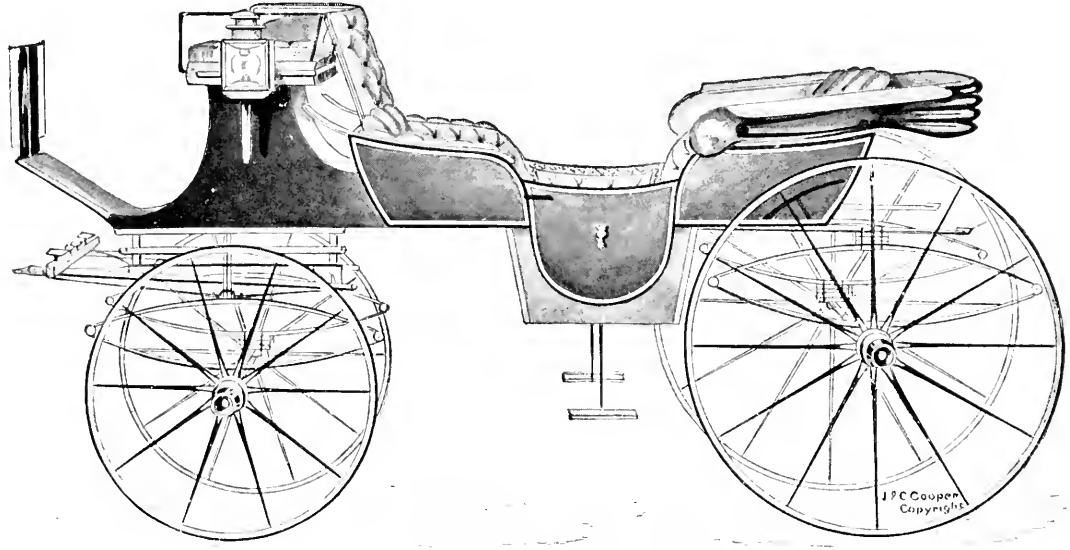
* *L'Art de Conduire et d'Atteler; Autrefois-Aujourd-hui.* By General Baron Faverot de Kerbrech. (Chapelot and Co., 30 Rue Dauphine, Paris.)

The writer of an article in the *Quarterly Review* of 1877, says that the victoria was introduced in 1869, "although a less elegant form of the carriage had long been known in England." Probably the author refers to the cab-phaeton. He goes on to say, "we have reason to believe that the trade made great opposition to its introduction from motives of self-interest. They have every interest in getting rid of old stock before they lend an ear to new forms. Even with so good a model of this carriage as that presented to them in the victoria, the English builders do not see fit to maintain the same lines, and for some inscrutable reason deem that the hood when down should rest at an angle; whereas the 'cachet' of the Parisian equipage lies in the absolutely straight line it maintains with the horizon."

The opposition of the coachbuilders must have been somewhat half-hearted. Our Queen recognised the convenience and advantages of the victoria at once, and as Mr. Hooper says, "Set off by Her Royal Highness they became irresistible and people at once understood that it was 'the correct thing' to ride in them." That understanding having been reached the coachmakers were far too wise to oppose the dictates of



DOUBLE VICTORIA WITH DOORS
(for One Horse).

a fashion set by the then Princess of Wales and the victoria rapidly grew in popularity.

The victoria most in vogue among ladies for visiting and shopping is that drawn by a single horse. The seat for a footman at the back is now very rarely seen.

The victoria has a curved form of body with a head to open and close over the seat, which affords space for two ; its driving seat is adapted for either one or two. There are four wings to protect the steps and interior from the mud thrown up by the wheels ; the floor of the carriage comes near the ground and a single step gives easy access. It is very usual to fit a small hinged seat to fold back flush with the front boot when not in use.

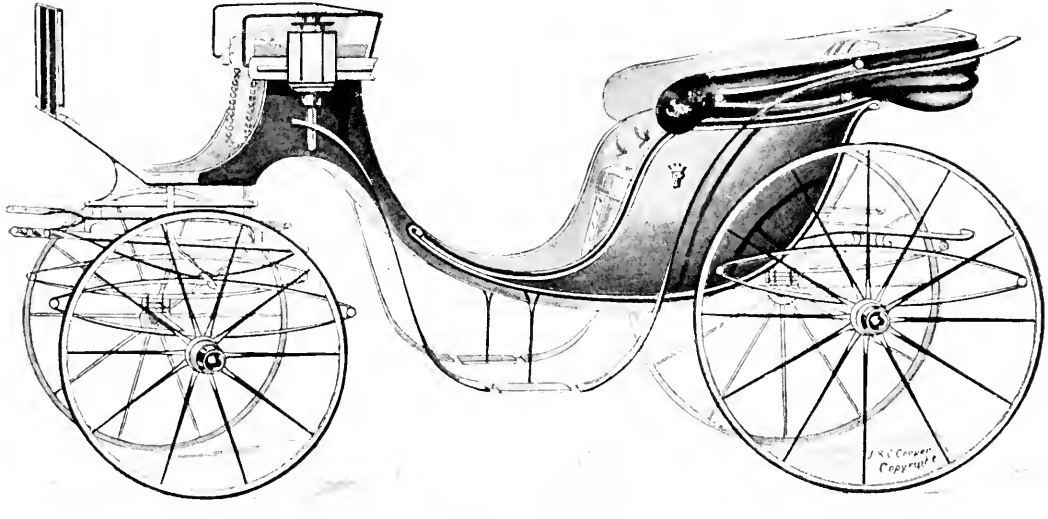
This carriage is hung in the same way as a landau ; for many years past an iron perch with under and C springs and leather braces have been used. It has been greatly improved in many ways, both in form and appointments ; many are fitted with a simple device, concealed between the leather and cloth of the head, whereby the occupant can with great ease raise the head in a moment without requiring the aid of a servant.

The criticism passed by the writer of the *Quarterly Review* essay on the conservatism

of English coachbuilders, does not hold good for modern days. So long ago as 1882 an authority observed, *apropos* of the numerous French built carriages then running in the streets of London, that it was impossible to mistake a Parisian built victoria or brougham for an English one. "Their rattle is enough to distinguish them. The French victoria is a low mounted and decidedly unsymmetrical machine. The pole a foot longer than it should be, the splinter bar and fore carriage too low."

The victoria of 1856 pictured in General Faverot's work differs from this description in that it is hung somewhat high and is not unsymmetrical.

The double victoria is described as "a combination of a victoria and a sociable, rather more like the former as regards size and weight, and like the latter in form and accommodation." Elsewhere we find this carriage called a "sociable without doors," or "double victoria." These vehicles have enjoyed a certain amount of favour since about 1885-8; the most obvious difference between the double and the ordinary victoria is that the former has a permanent front seat for two inside, so providing space for four. The double victoria looks



PARK VICTORIA.

best with a pair of cobs or ponies. This carriage appears to have been introduced in 1885 by Messrs. Thrupp and Maberly, who called it the "Siamese victoria."

The victoria on C springs with cab-shaped body, is built in many sizes, from that suitable for a single horse or pair of cobs to the large and high victoria which demands a pair of 16-hand horses. The "Canoe victoria" became fashionable in the season of 1897, its name, we are told by a writer at the time, "but slightly conceals that of our old friend the cab-phaeton." It is therefore one of the penalties of a carriage which enjoys wide popularity that it should undergo frequent changes of shape. The deep cab shape is now in vogue, but "Albert" and brougham-shaped victorias are also to be seen; during the season of 1903 the preference seemed to be divided between the graceful form of body with sweeping curves and the short deep victoria.

The victoria is essentially the lady's carriage, at once elegant and comfortable; it is easy to enter and leave, and the improvements of the last twenty years have made it as perfect for its purpose as it is possible to conceive.

PHAETONS.

Park Phaetons and Pony Phaetons may be considered after victorias, to which they bear some resemblance; the great difference being that the park and pony phaeton are self-driving vehicles, the driver's seat being absent, and replaced, in frequent cases, by a rumble at the back. They are built in very numerous different styles, but have this in common that they seat four persons, two inside and two in the rumble, all of whom face to the front. They are generally hung on four elliptical springs with the "fifth wheel" for locking; but sometimes elliptical springs are used in front with "Dennet" springs at the back.

The pony phaeton, as mentioned in a previous work,* was first built in 1824, for George IV., and its lines in the main continue much the same as in that original vehicle. They were known as "George IV. phaetons" until about the time of Queen Victoria. Our late Queen, in the year 1828, had a pony phaeton built, in which she used to drive in Kensington Gardens: it was drawn by four ponies ridden postillion.

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* *Early Carriages and Roads*, by Sir Walter Gilbey. Vinton and Co., Limited, 1903.

John Leech's pictures of early Victorian times show us how popular were the pony and park phaetons both in town and country; and their popularity has never waned.

Mr. Stratton, in the *World on Wheels*, gives us to understand that a pony phaeton was the first carriage to be called a victoria. He says :—

> In the summer of 1851 a unique little pony phaeton was built by Mr. Andrews, of Southampton, for the Queen. The original announcement stated that when the carriage was delivered in front of the palace in the Isle of Wight, "the Queen and Prince expressed to Mr. Andrews their entire satisfaction with the style, elegance and extraordinary lightness and construction of the carriage," which scarcely weighed three hundredweight. The height of the fore wheels is only 18 inches, and of the hind ones 30 inches. The phaeton is cane-bodied, of George IV. style, with movable head; the fore part is iron, but very light and elegant and beautifully painted. This carriage is known as the "victoria," and has since been much improved in England and America.

In the season of 1880 the ladies' driving phaeton was, with the exception of the victoria, the most fashionable lady's carriage and was in great demand. Like the victoria it is easy to enter and leave, and is comfortable; it is fitted with a high seat for the lady driver, who uses a horse or a pair of cobs. In the year 1893 Mr. E. Hooper remarked, in a paper on British

Carriages, that ladies' driving phaetons were "still being purchased." They were then being built somewhat higher and more compact, and so arranged that the pair of ponies driven were brought back nearer to the driver's seat. Whether it be an advantage or not to bring the horses or ponies "nearer their work" is a debatable point.

ROAD PHAETONS AND DOG PHAETONS have for many years been much in use in the country, for which they are better suited perhaps than for town driving. They are very usually varnished and combine a very "sporting" appearance with utility; luggage or dogs can be carried in the body, which is roomy, and there is sitting space for four, the occupants of the hind seat sitting with their back to the horse.

The T CART is a small stanhope phaeton with compassed rail and sticked body in front and a seat for the groom behind; it was drawn by a cob or 15-hand horse. It was very fashionable until about the year 1888, when it was supplanted in favour by the spider phaeton, which consisted of a tilbury body on four wheels with a small seat for the groom supported on branched irons behind. These "spider phaetons" are usually fitted with a head to raise over the

PRINCESS VICTORIA IN HER PONY PHAETON.

From a Drawing on Stone by Lowes Dickinson (about 1835).

fore part; they answer all the purposes of the mail phaeton except that the groom's seat has space for one servant only. Stanhope phaetons and dog-cart phaetons are almost always hung on elliptical springs, back and front.

The STANHOPE PHAETON has a curved panel seat in front with a folding head, and a railed seat with room for two at the back, and is generally used with a single horse. This carriage was described in 1887 as a "vehicular evergreen" as none had undergone less modification in design since its first introduction in its existing form. It is an extremely popular carriage; invented originally by Lord Stanhope, it is now in use in all parts of the civilised world; the head and apron render it suitable for winter work, and when the head is thrown back the stanhope is an admirable vehicle for summer use whether in town or country. A variety which failed to take the public taste was shown at the Sportsman Exhibition; this vehicle weighed only $3\frac{1}{2}$ cwt. and was described as "more akin to the tricycle than the carriage." The stanhope is really a modification of the mail phaeton.

THE MAIL PHAETON is heavier and larger than the stanhope, is often built on a perch

undercarriage and is drawn by a pair of horses. It was a favourite carriage seventy years ago or more and was frequently used by gentlemen for long posting journeys in England and on the Continent. In those days this carriage was always built with a perch, the undercarriage resembling that of the coach, whence its name. For a time elliptical springs were adopted, but during the last ten years the fashionable mail phaeton has been a solid looking square bodied vehicle on its old undercarriage.

This revival of the old method may be traced to Messrs. Hooper's mail phaeton, which was shown at the Coaching Exhibition of 1894. It was hung on perch undercarriage with mail axles and mail springs; but it must be said that authorities on driving and on carriages always maintained that this method of hanging the mail phaeton is the correct one. The late Earl of Chesterfield used to drive the best turned out mail phaeton in London.

This vehicle has become very popular in France and other Continental countries during the last twenty years. But the mail phaetons shown at the Paris Exhibition of 1889, were not equal to English vehicles: nearly all were heavier in construction than

any made in London for some years; neither did the French phaetons approach the best London types in respect of outline proportion, symmetry or style.

A novel feature of one of these carriages was a jointed perch; the object of this was to prevent the vehicle being twisted on bad roads and also to preserve its equilibrium under trying conditions of roads.

The Demi Mail Phaeton derives its names from the peculiar arrangement of the springs in the construction of the undercarriage. It was first introduced about the year 1805, and to it falls the credit of having ousted the ugly "perch high phaeton" from its place in public favour. The demi mail phaeton is hung on mail springs in front and on a combination called stanhope springs at the back. Tilbury, the famous carriage builder who invented the gig known by his name, devised this method of hanging a mail phaeton body.

The Beaufort Phaeton was designed for the express purpose of conveying men to the meet; it is a strong and compact vehicle which provides space for six, and is strictly a carriage for gentlemen to the exclusion of ladies. It may be described as a mail phaeton with three seats instead of two.

BASKET CARRIAGES.

Basket Carriages, more especially of the park phaeton shape with or without a rumble, had great vogue in the 'sixties. The wicker work carriage, drawn by one or a pair of ponies, was extremely popular in the country and might be seen everywhere. So generally were they used that John Leech made the pony basket phaeton the typical conveyance of the rustic young lady, in whose hand he usually placed that combination of driving whip and parasol which many of us can remember.

These "inexpensive and unpretending vehicles" were introduced by Mr. Charles Lenney of Croydon; the demand for them was such that it created quite a new industry for the town and gave an impetus, in a fresh direction, to basket-work throughout the kingdom. A writer in the *Coachbuilders' Art Journal* of 1887, attributes the disuse of the basket carriage to the ridicule poured upon it by *Punch*.

About the year 1886 small carriages again began to come into fashion and the taste for basket carriages revived: it did not last long, but we have a reminiscence of it in the imitation cane work painted on the panels of many carriages, noticeably of phaetons.

The basket carriage had much to recommend it in its light weight, small cost, and the comparatively little skill required to keep the body in order; whence no doubt its popularity among the country clergy and others of modest means.

SOCIABLES.

The Sociable was in use two hundred years ago. Mr. Thrupp gives, in his *History of Coaches*, a drawing of a vehicle which he describes as "probably the first sociable." It was a child's carriage of angular build, hung by standards and braces on a perch shaped to follow the outline of the body; this carriage dates back to the year 1700. It bears the German Eagle on the panels.

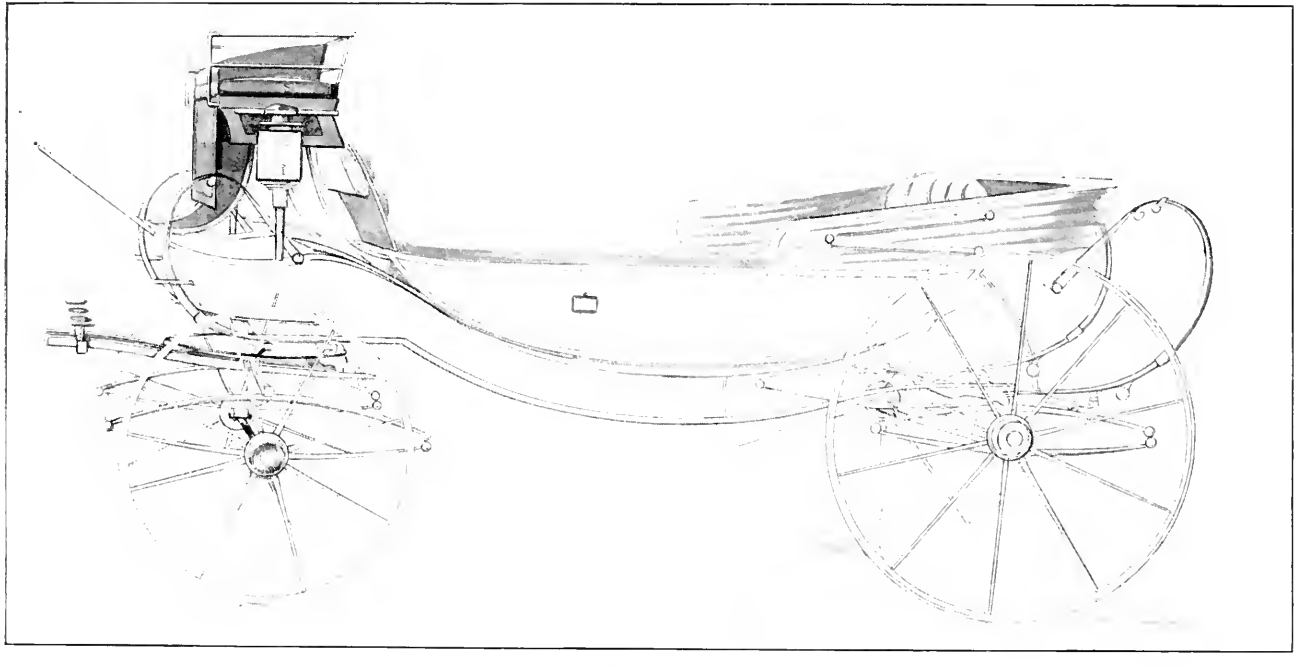
The sociable of a later period, about a century ago was made in the shape of a double-cab body, with or without doors and with or without a driving seat; sometimes an open body like this sociable and a chariot had but one undercarriage between them, which was used, according to the season, either with the open or the closed body. It was hung on a perch and much higher than it is now. The modern sociable

is a low hung carriage with a well-doorway, entered by a single step ; it carries four inside and has a low driving seat over the forecarriage ; the folding head shelters the hind part of the vehicle ; it is generally used with a pair of small horses 15- hands to 15.2.

His Majesty, when Prince of Wales, was fond of the sociable. Sociables are built in both the curved and angular shape ; the perch has been done away with for many years ; these carriages have to a great extent taken the place of the large pair horse landaus whose disappearance has been noticed.

About the year 1862, Messrs. Rigby and Robinson of Park Lane, built for Lord Elcho a sociable on which that nobleman's name was bestowed and which became extremely popular.

It went out of fashion, but was restored to a measure of the favour it formerly enjoyed in 1895, when it seemed likely to become the fashionable ladies' park carriage for the season. Imitation cane work on the panels was an old fashion which was also temporarily revived. Again in the year 1900 it was noticed that the square sociable was enjoying increasing popularity.



BAROUCHE.

The BAROUCHE SOCIABLE is a variety which has for some years fallen into disuse, why, it would be difficult to say; Mr. Hooper observes that these vehicles were "chiefly used in establishments of the first rank" and had elegance and style to recommend them. In shape the barouche sociable resembled two cabriolet-shaped bodies facing one another; the body was hung higher than that of the sociable and required two steps to gain access to them; a light driving seat on curved irons was provided for the coachman, and four long wings shielded the occupants from the mud thrown up by the wheels.

THE BAROUCHE.

The Barouche had great vogue in the earlier part of the nineteenth century. In 1810 three beautiful carriages were built at Milan on the occasion of Napoleon's marriage with the Princess Maria Louisa of Austria. These vehicles are still preserved at Vienna. One is a barouche, and like the other two (a State coach and a chariot), it is hung on C springs on a double perch Berlin fashion; each perch

is octagon, very well-shaped, and forged out of solid iron from end to end. The carriages are all small, light and well-finished.

A book of drawings, published by Ackermann in 1816, contains a print of a full-bodied barouche, only 5 feet long, hung high, with high wheels and a very short undercarriage with whip springs.

In the 'thirties and 'forties the barouche, on a perch undercarriage and hung upon C springs by leather braces, ranked among the most fashionable of the large carriages with the family coach, chariot and landau. Mr. Hooper, in his essay on *Modern Carriages* written in 1888, says that the depression of agriculture in England and Ireland, affecting all trades and manufactures, affected the coachbuilding industry, and more especially checked the building of barouches.

This may very well have been due to the fact that in many cases the barouche required special horses to draw it; being large and high vehicles, well calculated to uphold the dignity of the occupants, a pair of horses under 16 hands were out of keeping with the size of the carriage; and when the shrinking rent-roll obliged the county magnate to reduce his establishment, the

barouche, as entailing the maintenance of larger and finer horses than any other carriage, was dispensed with.

"Reduced incomes and the advent of victorias with one horse, or a pair of ponies," had almost put an end to the building of "such barouches as were redeeming features to the drive in Hyde Park," at the time Mr. Hooper wrote (1888), but since then there have been indications that these stately carriages are coming into favour once more. It cannot be said, however, that they have yet become at all numerous; the difficulty of procuring suitable horses no doubt explains their scarcity as compared with carriages more easily horsed.

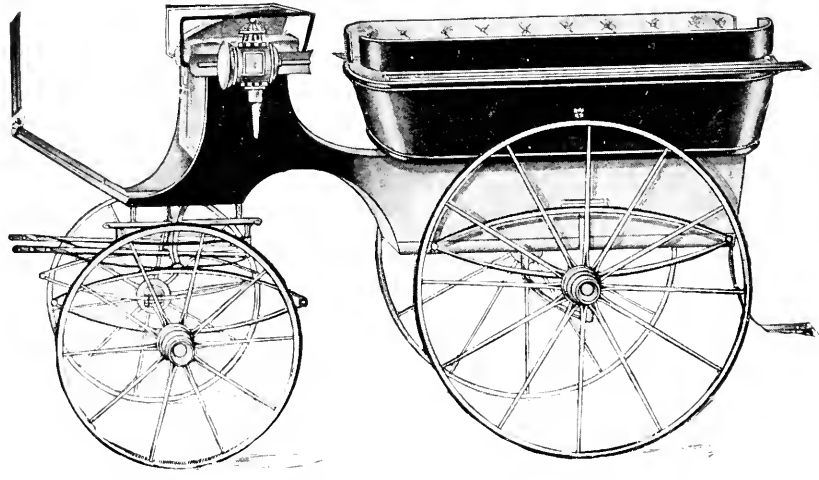
The modern barouche is hung either on under or C springs, with a perch of wood and iron combined, and is one of the carriages that require the highest skill in design and construction on the builder's part. Messrs. Hooper are famous for their barouches.

WAGONETTES.

The wagonette is said to have been introduced into this country in the year 1845, by the late Prince Consort. There is, it may be added, some doubt as to the exact

date of the appearance of this carriage in England. A writer in the *Coachbuilders'*, *Harness Makers' and Saddlers' Art Journal*, of 1885, gives the date as 1842; whichever be correct the authorities are agreed that we owe this useful vehicle to the Prince Consort, who may have acquired his high opinion of it from carriages then in use in Germany; though in an article in the journal above mentioned, in 1887 the wagonette is referred to as "a perfect open family carriage *designed* and built under the superintendence of the Prince Consort." Mr. Hooper, in his essay on *Modern Carriages*, says that His Royal Highness adapted the char-a-banc to the wagonette pattern.

The early wagonettes were built of considerable size; and during the 'fifties came into such general use that their increase was remarked by the jurors who reported on the carriages shown at the Exhibition of 1862. It is not necessary to describe a vehicle so familiar; the wagonette has the advantage of being not only smart and comfortable, but of carrying a larger number of persons than any other four-wheeled vehicle of the same weight and size. Many of the smaller wagonettes are made with removable hind seats, and the body is so constructed that



LOW HUNG ROUND CORNERED WAGONETTE
(Very frequently fitted with head).

one of the seats can be fixed parallel with the axle to convert the carriage into a stanhope. They are usually hung on elliptical springs. A pair of horses are used with the larger sizes, but the smaller are easily within the compass of one.

In the year 1869 Mr. Samuel Smith of Halesworth in Suffolk, patented a carriage similar to a wagonette, but which was so constructed that a lady could reach the front seat from the back : thus avoiding the necessity for climbing in over the front wheel. This was accomplished by cutting the driving seat in two in the centre, and making the near half to lift up. The invention won success as evidenced by prompt imitation. Mr. Smith called his novelty the "Perithron."

The PORTLAND WAGONETTE was designed in 1893 by the Duke of Portland, who wanted a vehicle in which to drive to covert. This is a substantially built carriage for a pair of horses and the novelty consisted in the addition of a folding hood. In 1881 Mr. Neil of Bath, produced a new wagonette head constructed of wood and glass which was made to fold and fall under the front seat which turned up for the purpose.

Lord Lonsdale, in 1893, presented to the

then Duke and Duchess of York on their marriage a "landau wagonette" with a folding leather head which opened sideways over the wheel. Lord Lonsdale allowed his name to be given to this device under the impression that he was the first to originate a head of this description: but his claim to credit for invention of it was disputed at the time. Mr. Robertson stated that he built such a wagonette so far back as 1864; Mr. Kinder had built one in 1865; and Messrs. Morgan stated that they had turned out a similar vehicle before the year 1870.

Whoever is entitled to credit for the invention, the fact remains that it continues to be known as the "Lonsdale wagonette" and has found favour with royalty. Mr. Hamshaw of Leicester, exhibited one at the Royal Agricultural Society's Show at Leicester in 1896 under this name; he has built "Lonsdale wagonettes" for His Majesty when Prince of Wales, for the present Heir to the throne, and for the German Emperor.

BRAKES.

The WAGONETTE BRAKE, for three or four horses, is merely a wagonette on a

very large scale with a lofty driving seat which affords space for four more; very often the vehicle is built with a second transverse seat behind the driver's. This in the largest sizes is a most popular vehicle for carrying large parties of London children or holiday makers into the country for a day's "outing."

These large conveyances are generally furnished with a light canvas awning for summer use. In 1887 Messrs. Todd and Wright exhibited an improved wagonette brake with interchangeable spring-back stuffed seats or revolving chairs, which enabled the occupants to sit facing the horses if they desired; it does not seem to have won much acceptance.

BRAKES as gentlemen's carriages came into use in the early 'sixties, or if not actually introduced at that period, then became much in demand.

The CHAR-A-BANC was first seen in England about the year 1842, when King Louis Philippe, of France, presented one suitable for a team to Queen Victoria. It was a long open carriage hung high and having four seats all facing to the front, each to hold three persons. The Prince Consort had a modified type of this carriage constructed

with a lower hung and smaller body furnished with three seats, a light movable roof and waterproof silk curtains. The char-à-banc, as a gentleman's carriage, is not often seen nowadays; though in 1893 it was said to be coming into favour. It is essentially a vehicle for large establishments and is rarely found where the coachhouse does not provide space for more than four carriages.

DOUBLE DOG CART.

The Four Wheeled or Double Dog Cart is very popular and useful for the country; it differs from the ordinary dog cart in possession of two independent backed seats; and it also provides more space than the two wheeled carriage. It is practically identical with the road phaeton or dog phaeton.

FOUR WHEELED BUGGY.

The Four Wheeled Buggy was imported from America thirty years ago or more. Its extreme lightness is its most striking characteristic. These vehicles are said to have been modelled from the old German wagon, but they have been so much improved as to be scarcely recognisable. The distinctive feature of the German wagon

was a light shallow tray, suspended above a slight perch carriage on two grasshopper springs, placed horizontally and parallel with and above the front and hind axle-tree ; on the tray one or two seats were placed, and the whole formed a light and inexpensive vehicle well adapted to a new rough country without good roads.

Ingenious American builders took the German wagon in hand and have evolved therefrom a carriage which is the perfection of lightness ; the two grasshopper springs have been replaced by elliptical springs ; perch, axle-trees and carriage timber have been reduced to mere sticks ; the wheels have been refined till they resemble a spider's web ; these are made of oak or hickory, and fore and hind wheels are nearly the same size. The iron work is very slender and the wooden parts are like cabinet work.

So light is the American buggy that one man can set it upon its wheels again if it be upset, and two men can lift the vehicle clear off the ground without effort. Buggies are made with and without hoods ; when a hood is attached it is made of very thin and supple enamelled leather and is so arranged that the sides can be taken off and the roof part retained.

One defect of the buggy is the difficulty of getting in and out, owing to the height of the front wheel and its nearness to the hind wheel; it is often necessary to partly lock round the wheel to allow of easy entrance. Another drawback is the vibration inseparable from the passage of so light a carriage on the hard road.

These buggies are built in great numbers in the United States. Mr. Hutton, a Dublin carriage builder who visited America in 1881, wrote a paper on the industry in that country from which the following passage is taken.

"In the buggy trade the fact that three four-wheeled carriages could be built for £20 and leave a margin for profit, astonishes one until one has seen them. There is hardly a mechanic in the whole of these factories; boys do a large proportion of the work. Mr. Cook saw that a cheap buggy was required among the settlers and started what is now one of the most flourishing industries in the west. No attempt is ever made to repair these buggies, when one fails in any way it is put aside. Messrs. Cook kept 850 men and they made at the rate of one buggy in every ten minutes. Every man had his task and knew it thoroughly and knew nothing else."

These cheap buggies "were thrown together, not put together," by machinery; each part was made the same size, off the same mould, as it were, so that no nicety of

fitting was required. Another writer says that a fair average price for these vehicles was £10. Everyone in America appeared to possess a buggy; even workmen who lived four or five miles away from a city used one. Really good buggies cost from £80 to £100 to build.

The buggy is made for one horse or a pair. Lord Lonsdale selected a vehicle of this kind with which to perform his famous driving match against time in 1891. He undertook to drive four stages of five miles within an hour, using for the first three stages in turn, one horse, a pair, a team, and riding postilion in the fourth. The hour was to include the time required for changes. It is worth recalling the details of this remarkable performance.

	Mins.	Secs.	Mins.	Secs.
First stage with one horse ...	13	39⅕		
Change to pair ...		3		
			13	42⅕
Second stage with pair ...	12	51⅖		
Change to team ...		36⅗		
			13	28
Third stage with team... ...	15	9⅖		
Change to pair ...		40⅖		
			15	49⅕
Fourth stage riding postilion	...	...	13	55⅘
	Total	...	56	55⅘

The Caravan.

Whether the caravan, or "land yacht," as it is sometimes called, should be included among carriages properly so described is perhaps doubtful, but as a number of these vehicles have been built during the last twenty years for private persons who enjoy an independent if a slow method of travelling about the country, a few words on them may not be out of place.

The caravan is built on the principle of the ordinary gipsy van, but is hung on lower wheels, is more roomy and commodious and is adapted for two horses. The size varies in accordance with the owner's requirements; but the vehicle most in vogue is contrived to accommodate four persons, including the driver, who should be a handy man of all work.

The following description of a caravan which Messrs. Atkinson and Philipson of Newcastle built some years ago for a gentleman who required it for prolonged fishing and pleasure excursions, gives a good idea of the class of vehicle. It was fitted up for four persons and was equipped "with all the conveniences of a modern dwelling. It stands 9 feet high, is 6 feet 6 inches wide and 12 feet 6 inches long. It is built of English

oak with yellow pine panels. There is an oil stove for cooking, cushioned seats and other luxuries, while a movable partition divides the apartment into two at the pleasure of the occupant. The caravan when fully equipped weighs only about 15 cwt. and can be drawn with ease by one horse."

No vehicle affords greater scope for the exercise of ingenuity than the caravan; being required to answer all the purposes of a dwelling and a conveyance, the owner and the builder have a wide field for their talents in devising means of combining the maximum of comfort with the minimum of weight and packing space.

THE BIAN.

"Bian" was the name given the long outside car of Ireland, introduced by the famous Italian Bianconi. The career of this remarkable man is one of the romances of industry. Born in 1786, at Tregola, a village eight or ten miles from Como, Carlo Bianconi was the son of fairly well-to-do parents. He says of himself,* that while

* *Charles Bianconi*, by Mrs. O'Connell.

he was at school "I was not merely the greatest dunce, but the boldest boy in the place. In 1802 I was about fifteen or sixteen years old, a dunce and a very wild boy," and either to save his son from the conscription, or because he was "a very wild boy," the elder Bianconi sent Charles away, apprenticed to Andrea Faroni, who was to take him to England to learn the business of a "dealer in prints, barometers and spy glasses."

For some reason Faroni took young Bianconi not to England, but to Dublin, and there, in the summer of 1802, set to work to make numbers of small leaden frames, in which he mounted cheap prints of sacred subjects which he had brought from Italy. These prints Bianconi and other boys had to sell in the Dublin streets.

As soon as Bianconi knew a little English he was sent into the country districts about Dublin to dispose of these wares, and he started "every Monday morning with two pounds worth of these pictures and fourpence allowed me for pocket money, on the understanding that I was expected back on the following Saturday evening." After the country round Dublin had been "quite beaten" he was sent to Waterford to sell pictures there.

After his apprenticeship to Faroni expired, Bianconi being then seventeen years old, he scouted the idea of going home to Italy, and started in business for himself with a hundred louis which Faroni made over to him; and furnishing himself with a stock of large-sized framed prints weighing over 100 lbs., he set out to tramp the country. It was the exertion of carrying this load which turned Bianconi's mind in the direction of cheap carriage for the poor; but his embarkation in the car business was still a matter of the future.

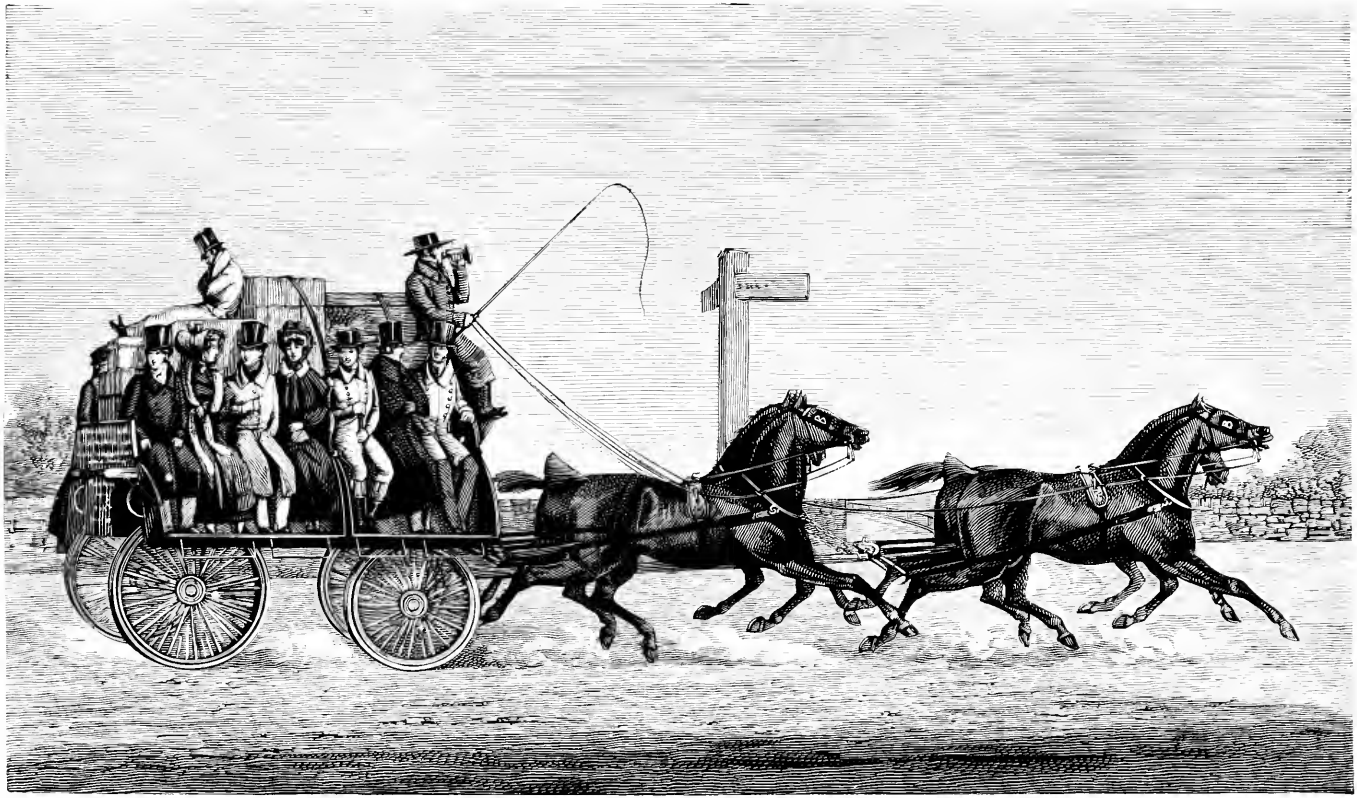
He was a youth of ambition and his position as a pedlar galled him; he tells us that he "boldly resolved to throw away his portfolio" and turned carver and gilder; this step was taken in 1806 at Carrick-on-Suir. Soon afterwards he went to Waterford, where he made himself more proficient in the business (about which he knew practically nothing when he started) and improved his means. After a couple of years at Waterford he moved to Clonmel, which thenceforward was his home.

For some years after his establishment at Clonmel he made a business of buying up the "hoarded guineas of the peasantry" for Government agents, bullion being in great

demand for the subsidies we were then paying the allied armies of the Continent. Thus Bianconi's financial position improved, and he was able to seize his opportunity when it came. It must be said that while carrying on the carving and gilding business and that of bullion purchase his old idea of relieving suffering pedestrians faded away; the idea was born of his own hardships, and, as he says, his inability to converse freely with the people he met on his travels in his pedlar days, left him free to observe his surroundings and gave him enforced leisure for brooding.

His horse and car business was founded in the year 1815, when the peace following Waterloo afforded him the chance of buying some first-class horses which had been intended for the Army: these Bianconi purchased at from £10 to £20 a head, and in July, 1815, he started a car for the conveyance of passengers from Clonmel to Cahir, which subsequently extended its run to Tipperary and Limerick. At the end of the year he started cars from Clonmel to Cashel and Thurloe, and to Carrick and Waterford.

We may quote from a paper read by Bianconi at Dublin, in August, 1861, to



THE "BIAN."

show how the demand for his cheap car services was brought about :—

"Firstly, the tax on carriages, by which the middle classes were precluded from using their own vehicles. Secondly, the general peace that followed the battle of Waterloo, and by which a great number of first-class horses, bred for the army, were thrown on the market with very little competition exciting for their purchase. The family outside jaunting car, thus expelled from general use by a carriage tax, suggested itself to me as being admirably adapted to my purpose, and I was enabled to procure these vehicles on very moderate terms. The state of the roads were such as to limit the rate of travelling to about 7 miles an hour."

Bianconi obtained the money to expand and push his business in a somewhat unexpected way. At the Waterford election of 1826 the Beresford party, which expected no opposition, engaged his cars in the town. After a time Mr. Villiers Stuart consented to let himself be nominated, and he applied to Bianconi for cars. Bianconi replied that they were engaged by the Beresford faction, but when the Villiers Stuart party heard this they determined to bring Bianconi over to their side, which they did by the simple process of stopping two cars and throwing them, horses, drivers and all, over the bridge.

Bianconi was thus convinced which side it would be most profitable to support and

cancelling his agreement with the Beresford party, threw in his lot with the other. The election lasted several days, and when Mr. Villiers Stuart had won, the carman received £1,000 for his services. Hay, oats, straw, and all provisions were at this time extremely low in price, and Bianconi spent his £1,000 in forage, in order that he should no longer be at the mercy of the markets.

The headquarters of the business remained always at Clonmel, and there was kept the largest number of horses. Among them were to be found "screws" from all parts of the country, for when an animal was found unmanageable, broken down, or hopelessly vicious, he was forthwith offered to Bianconi, who was sure to find a use for him. Mrs. O'Connell mentions one large black stallion which was reported to have killed three men; he went daily from Clonmel to Carrick-on-Suir, but there were only two men who dared touch him. One evening, half-way on the journey, the bridle slipped off his head. Larry Hearn, the driver, could not replace it, but he managed to reach home safely, thanks to his clever handling of the rest of the team.

Bianconi appears to have been the most suspicious and exacting of employers. When

his business was at its zenith he had 140 agents in various parts of Ireland and each one was required to furnish an account of the consumption of straw, hay and oats; particulars of the number of horses fed and each animal's consumption—these elaborate accounts being called for as a check against the agents, who might use their employer's forage for their own horses. Bianconi would not keep a groom or a helper whose wife owned hens, for fear the man or his wife should use the oats to feed their poultry.

Bianconi had his own ideas about the treatment and feeding of horses; he had an axiom that a coachhorse could not be kept too warm in the stable, because it came in heated from work. Each horse was allowed daily 15 lbs. of oats, in three equal feeds, and 16 lbs. of hay. Bianconi held that too much hay tended to produce broken wind, but 16 lbs. is not a bad allowance. He also thought that the less litter a horse had under him the better, and each horse was limited to 8 lbs. of straw daily. The slightest excess in the consumption was charged to the agent, who had to refund the cost of it.

Under Bianconi's remorseless management the business was made to pay. In 1864, the year before he transferred it to other hands,

the passenger traffic brought in £27,731, and the mail contracts £12,000; £39,731 in all.

To ensure the honesty of his drivers, Bianconi depended largely upon a system of espionage. These were often schoolmasters on holiday, who were glad of the opportunity of a free outing. They counted the passengers in order to check the waybills, reported on the state of the horses, harness and vehicles, and the behaviour of the agents, drivers, and helpers towards the public, more especially the agents. There seems to have been good reason for employing spies. The drivers were ever on the look-out for them, and they displayed marvellous ingenuity in detecting their presence and in making it known to fellow drivers on the road.

It is worth noting that Bianconi's smaller cars were at first drawn by one horse of good stamp, but with the peace that followed Waterloo—"the demand for such horses ceased, the breeding of them naturally diminished, and after some time I found it necessary to put two inferior horses to do the work of one."

He appears to have carried mails from the very beginning of his enterprise in 1815 and continued to do so for many years without a

contract. Anthony Trollope says that he commenced to do this between Clonmel and Cahir and made his own bargain with the postmasters.

An example of the Long Car was shown at the Crystal Palace Exhibition of 1896. It was built to carry six persons on either side, the well between the seats being given up to baggage and parcels; it was drawn by two horses and weighed about 16-cwt.

CONVERTIBLE CARRIAGES.

Combination or convertible carriages are those which can be used either on two wheels or four. An historical conveyance of this kind was shown at the Crystal Palace Exhibition in 1896. It was the invention of Mr. W. Bridges Adams, who called it the "Equirotal;" it found favour with the great Duke of Wellington, who purchased the carriage about the year 1838.

The component parts were a gig without a head and a curricle with a head, so made that either could be used by itself with one horse or a pair, or secured one to the other with couplings between to make a mail phaeton. The wheels of each vehicle were of equal height, whence the name. Mr.

Thrupp says of this invention "it has some good points and may be revived some day with a more perfect connecting joint than Mr. Adams contrived in 1838."

In the year 1880 Messrs. Kerridge of Needham Market, produced a patent convertible carriage, which could be easily changed from a two to four wheeler in a few minutes. In its two wheeled form it was a neat Battlesden car ; by removing the shafts and attaching a fore carriage by means of a pair of "pump handles" or front cranes fitting into the shaft sockets, the carriage became a victoria, with a front seat, if required, for children.

In the carriage section of the Inventions Exhibition of 1885, Messrs. Clift of Wellington, showed a small vehicle which by the adjustment of a few bolts could be converted from a two wheeled car into a four wheeled phaeton ; this contrivance, which was called the "Excelsior Combination carriage" caught the public fancy and brought the inventors numerous orders.

A more complex invention was that of Messrs. Atkinson and Philipson, who showed an example of it at the Coaching Exhibition of 1894. This was a carriage which could be used as a brougham or a single or double

victoria; a further advance was made on this ingenious vehicle whereby it could be converted from a brougham to a char-a-banc. This latter development was shown at the Carriage Exhibition at the Crystal Palace in 1896.

The idea of making one undercarriage answer for two, or even more bodies of different builds, is by no means new. A list of assessed taxes of 1853, which had been in force for thirty years, shows us that every four wheeled carriage for two horses was taxed £6 to £10 per annum and "for every additional body 3 gs.," this indicates that the practice of having more than one body was extensively followed, otherwise the Inland Revenue authorities would hardly have deemed it necessary to provide against it.

In the days when this scheme of taxes was in operation the vast majority of carriages were built on a perch with C springs; a method which lent itself with facility to the removal of one body and substitution of another. A new tax schedule was compiled in the year 1854 and in this no reference is made to "additional bodies," which circumstance proves that the fashion had by that date passed away.

Its disappearance is attributed by one good authority to the fact that the landau had by then been perfected and offered a far more convenient choice between an open and closed carriage than the cumbrous system of changing the body.

TWO WHEELED CARRIAGES.

In the Two Wheeled Class we have the Dog Cart in its many varieties, such as the curricle tandem, polo, panel, nursery cart and governess cart; the gig and its variations, such as the tilbury and skeleton gigs, while the buggy may also have been suggested by the shape of the gig. The Battlesden car has sufficient individuality to stand alone; the "cosey" is a modification of the buggy; the ralli car may be placed half way between the gig and the buggy.

The avondale, or as it is more properly called the governess cart, is a comparatively new design and its shape shows a certain originality which places it in a class by itself with some other builds of vehicle which appear to have been suggested by it. The Irish car and the hansom cab also stand by themselves.

GIGS.

Of the two wheeled carriages in use the gig is the oldest. In former days, before the railway era, it was probably the most familiar vehicle on our roads, for at that time it was almost universally employed by commercial travellers whose occupation required rapidity of travel and independence of movement. Also, gigs were quite the commonest conveyances to be seen on the suburban roads round London in the 'thirties, for bankers, merchants and traders who lived in the outskirts drove up to their offices in the morning in their gigs returning the same way after the day's work. The "gighouse" was an indispensable adjunct to the small suburban residence at this period and these miniature coach houses providing space for the owner's gig, and no more, are still to be seen round London.

The gig, as a means of travelling from the suburbs to the city, was driven off the road by the establishment of the omnibus and tramcar, even as the stage and mail coaches were ousted by the railway.

Most of the gigs of that period appear to have been hung Stanhope fashion with four springs, two side and two cross, forming

a square; these supported the body of the vehicle, the ash shafts, which were iron-plated, being connected with the axle by span irons. This method of building made the gig very comfortable for the passengers, but the shafts being without spring action vibrated terribly with a fast horse, and it was impossible to keep the iron plates and stays sound for any length of time.

When the gig came into fashion again in the early 'seventies, coachbuilders avoided this drawback by using lancewood fulcrum shafts with tapered hind ends; and by attaching chains from the axle to a splintree in front an even pull was secured from axle and wheels. The shafts were attached to fulcrums near the front step forming connection with the body, and one or two other less important alterations overcame the results caused by vibration.

"Fulcrum shafts" were first patented in the 'thirties, and as they accomplished their object, to stop jolting, they have been applied to many two-wheeled carriages. Gigs vary widely in shape and mode of suspension.

The TILBURY gig, invented by the coachbuilder of that name, who carried on business in South Street, London, had great

vogue in the earlier years of our late Queen's reign. A vehicle much resembling the Tilbury was in use as far back as 1750 or 1760 in France, and infinite pains were often expended upon it. A very beautiful example of this conveyance, the property of Mr. J. A. Simpson, was shown at the carriage exhibition held in the Crystal Palace in 1896. The general appearance of this carriage is made familiar to us by numerous prints of early Victorian days.

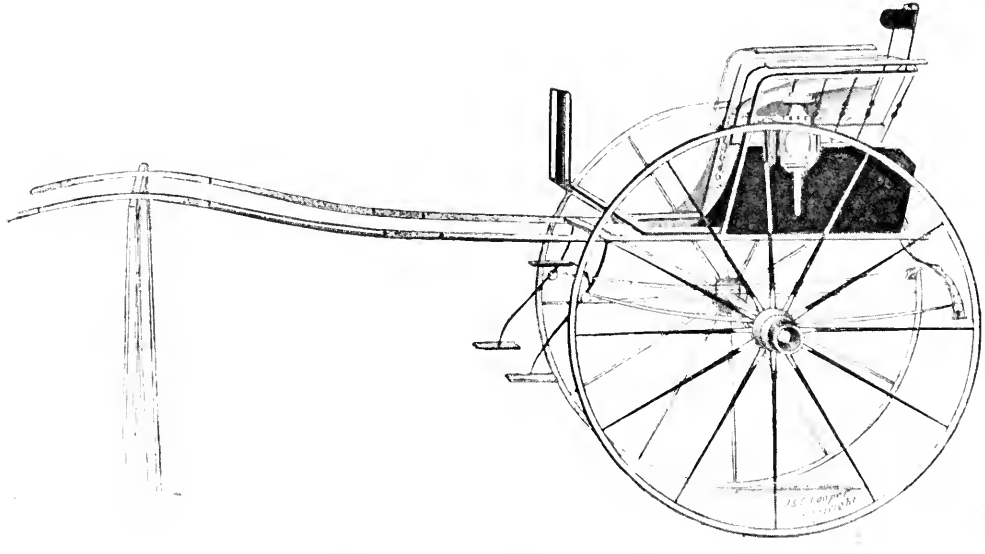
The Tilbury was made without any boot, but otherwise the body was shaped like a Stanhope; the shafts were equally strong and plated with iron: it was an elegant carriage, and when well made, a particularly good vehicle, but the weight of so many springs and so much iron work gradually took away the public favour. Tilburys lasted until nearly 1850. They were perhaps more in favour for export to Italy, Portugal and other foreign countries, than any other two-wheeled carriages, because they would hold together over the roughest roads and lasted a long time without repair.

Several Tilburys were exhibited at the Paris Horse Show of 1880; they were built of plain polished wood, with hickory wheels

and lancewood shafts. The wheel timber used was imported from America and was considered much superior for the purpose to any wood grown in France.

The method of suspending the body of this carriage was certainly cumbrous and required very nice adjustment to secure comfort. Mr. G. N. Hooper, in a paper read before the Institute of British Carriage Manufacturers at York in 1899, gave the following description of it :—

"The suspension of Tilburys is really a double suspension, for an under spring is fixed on the axle and attached to the shafts with scroll irons. The Tilbury has a cross spring raised a long way above the hind part of the shaft on a bracket iron: two short elbow springs are secured to the bottom of the curved seat of the body, while two more are attached to the bottom of the body in front. On the proper proportion and adjustment of all these springs depends the comfort of the carriage. If the leather brace which lies at the bottom of each elbow spring is too long, every time the horse's back rises, he causes an action to be set up which exactly resembles the familiar old-fashioned cinder sifter, and which becomes specially disagreeable after a meal."



STANHOPE GIG WITHOUT HOOD.

This method of hanging the body of the vehicle is so identified with the Tilbury that the arrangement is known as "Tilbury Springs."

The DENNETT gig deserves passing mention as one of the carriages which enjoyed great popularity in the earlier years of the late Queen's reign. "Tilburys, gigs, and Dennetts," are often mentioned together as representative examples of the two-wheeled conveyances then fashionable. The Dennett was the invention of Mr. Dennett, of Finsbury, and was an improvement on the old "whisky" of 1790; it resembled the whisky or gig in the mode of suspension, being hung upon two long horizontal springs.

The STANHOPE GIG was an improvement on the Tilbury; it was the invention of the Hon. Fitzroy Stanhope, brother of Lord Petersham, and the first one was built by Mr. Tilbury, inventor of the carriage named after him.

Mr. Stanhope took a keen interest in coachbuilding, and his practical knowledge almost qualified him to become a coachmaker himself. Hung upon four springs, two of which are bolted between the shafts and axle, and the other two crosswise, parallel to the axle at either end of the

body and shackled to the side springs, the Stanhope is a very comfortable and easy-running vehicle, and the rocking motion behind a rough trotter is less than in any other gig.

Some additional weight is involved by the necessity for iron plating round the shafts. One objection to this vehicle was that if regularly used with a fast trotter it was almost impossible to keep the iron plating, &c., sound, however carefully the gig was looked after. The Stanhope gig had great vogue in the 'eighties, having come into fashion again; the method of building was then somewhat altered to obviate this drawback.

Mr. Hooper says: "the comfortable four-spring arrangement of the old Stanhope gigs was combined with the improved method of using the lancewood fulcrum shafts with elegantly-tapered hind ends. By applying neat chains to the axle flaps under the springs and attaching the splintree in front, an even pull was secured from the axle and wheels. By attaching the shafts to fulcrums near the front step they were connected with the body, and by supporting the tapered hind end between two cylinders of indiarubber free play was permitted without risking a rattling noise."

THE CABRIOLET.

The Cabriolet, which for many years was very fashionable in London, is seldom seen nowadays, though within the last few seasons at least one appeared in Hyde Park. Mr. G. N. Hooper gave a good description of the cabriolet, in his paper on the "Suspension of Road Carriages," read before the Institute of British Carriage Manufacturers, at York, in 1899; from that paper the following passages with the author's pointed remarks on the "tiger," are taken:—

The cabriolet requires still more attention to the balance [than the dog cart] for it must be built strongly to be safe. It carries a heavy body, and the weight of the groom, who stands behind, tends to alter the shape of the shafts. For so delicate and difficult a construction, it is necessary to know how they are generally used. This gives a keynote to the treatment. In London the heads are nearly always half struck. This affords shelter as well as privacy, and allows the hind end of the shafts to be kept short. If provision has been made for the head to fall entirely, the hind end has to be extended, the C-spring fixed further back, and the weight and leverage increased. As the groom almost always stands behind, he really helps to remove some of the weight from the horse's back, and the balance should be arranged as if he were always in his place.

These carriages were greatly improved about fifty years ago by the well-known Count d'Orsay and the late Mr. Charles B. Courtney, who greatly refined

the outlines and proportions, making them lighter, more compact and far more stylish. They became *par excellence* the equipage of the *jeune noblesse*, and no more stylish two-wheel carriages for one horse were driven for many years while they were fashionable. A large well-bred horse was a necessity and this the cabriolet generally had.

The groom, or "tiger," as he was then called, was a special London product: he was produced in no other city, British or foreign; all the genuine tigers hailed from London. His age varied from fifteen to twenty-five. Few there were that were not perfect masters of their horses, were they ever so big. In shape and make he was a man in miniature, his proportions perfect, his figure erect and somewhat defiant: his coat fitted as if it had been moulded on him; his white buckskin breeches were spotless; his top boots perfection; his hat, with its narrow binding of gold or silver lace, and brims looped up with gold or silver cord, brilliant with brushing, was worn jauntily. As he stood at his horse's head, ready to receive his noble master, you might expect him to say "My master is a duke, and I am responsible for his safety."

THE SULKY.

Of the Sulky, a vehicle introduced from America, it is unnecessary to say much. Designed for use on the trotting track, it combines the utmost lightness and strength with the least possible accommodation. It practically consists of shafts, wheels, springs and an elementary seat for the driver which is supported directly by the shafts.

A curious form of sulky was invented some years ago; in this the horse ran between the wheels, the shafts forming a deep U whose curve came round the horse's stifles. The driver's seat was some inches above the animal's back a little further back from the withers than an ordinary saddle would be placed. It does not appear to have gained the good opinion of patrons of the trotting track.

THE CURRICLE.

The Curricle is a useful and comfortable conveyance, which has, quite undeservedly, gone out of fashion, and is seldom seen on our English roads. In the time of the Prince Regent it was the "most stylish of all conveyances;" it was hung on C-springs behind and elbow springs in front, and was used with a pair of horses harnessed to the pole which hung from the "curricle bar" resting on and attached to the saddles. This method of harnessing gives great freedom of movement to the horses, while the carriage, if properly balanced, runs smoothly and free from disagreeable jolts.

Mr. Thrupp says the original curricle was the outcome of a carriage which was built

by the Italians of the middle ages. "The French added springs, and the English altered the shape, giving the back panel an 'ogee,' or chair curve, and improved the hood, and now added a spring bar across the horses' backs, rendering it a graceful and easy vehicle, which could be driven at great speed."

The balance of the earlier curricles appears to have been very indifferent; it was clumsily corrected by filling the hind part of the undercarriage with a box, in which was placed a quantity of iron to counteract the weight of the body which was set forward of the axle. The want of perfect safety checked its early popularity, and it was gradually superseded by the gentleman's cabriolet with one horse, and the mail phaeton with two horses. It was in use from 1700 to 1830.

The great novelist, Charles Dickens, drove a curricle as soon as he could afford to keep a carriage. Count d'Orsay and Lord Chesterfield had curricles built by Messrs. Barker in the year 1836.

The Indian "tonga," a rather low, hooded vehicle, built somewhat on the lines of a Ralli cart, is furnished for draught by a pair of ponies on the curricle principle with pole

and bar. The advantages of the arrangement, as the writer is informed, are very apparent on the rough hill roads of India, or with unsteady ponies: though one of the pair canter while the other trots, the cart runs quite steadily; while the most violent kicking scarcely disturbs the equilibrium of the vehicle, the point of suspension being on the bar which connects the saddles just behind the withers.

A curricle was introduced about 1883, which differed materially from the vehicle formerly known by that name. It consisted of a cabriolet, or whisky body, having an "ogee" or chair back, the body being suspended by braces from C or S springs upon the undercarriage. Its peculiarity lay in the use of long lancewood shafts, set so far apart that the pole could be placed between them; the saddle bar being used to support the pole the shafts it would seem were somewhat unnecessary.

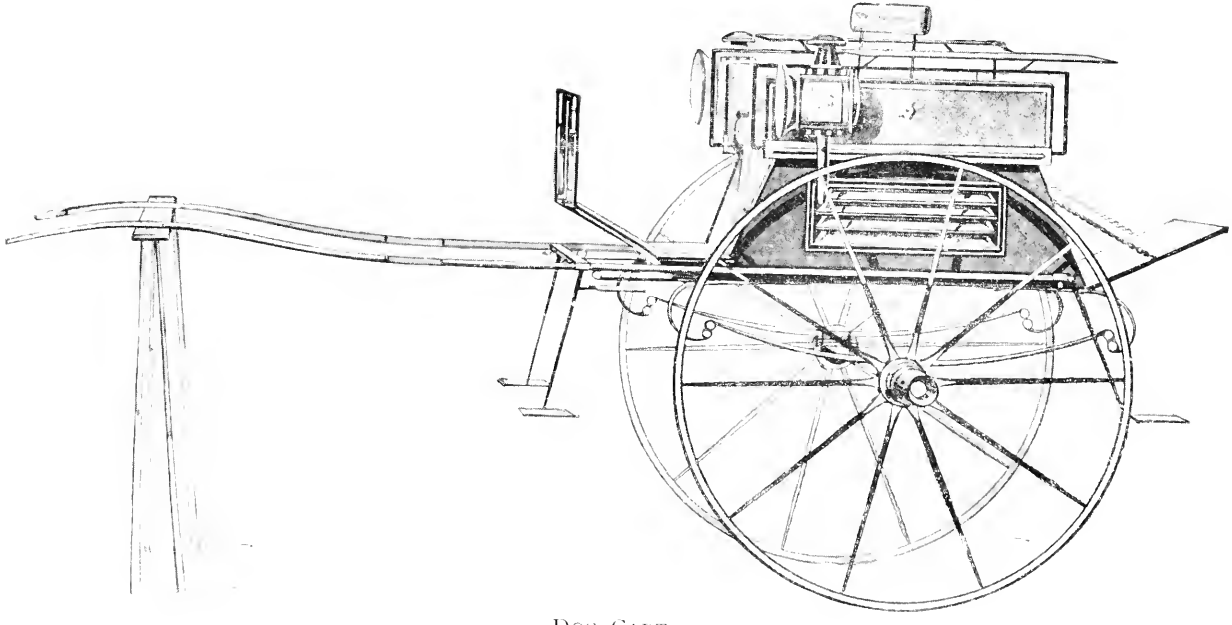
THE CAPE CART.

Nearly allied to the curricle method of harnessing is that in use for the Cape cart. In this vehicle, whose general plan much resembles that of the Whitechapel, with a

pole in place of shafts, a cross bar, called the "bugle," is hung to the lower arc of the collars to support the extremity of the pole.

When the sons of Queen Alexandra made their tour round the world in 1881, one of the presents they brought home to their mother was a Cape cart of the build in use in South Africa. It is described as a two-wheeled vehicle driven sometimes with a pair, sometimes with four horses, the pole being fitted for that purpose. The body, about 4 ft. 9 in. long, was formed like a Whitechapel cart, the sides being framed so as to present three panels. At the back was built in a large box for provisions, the full width and depth of the cart, the back seat forming the lid; the tail board was used only as foot-rest. An adjustable centre seat with back-rest could be used so as to provide accommodation for six passengers. A white canvas tilt on wooden hoops with sun blinds at the sides, which could be strapped up when not wanted, covered the whole body of the cart.

The value of the curricle-bar or the alternative method described is much less apparent on our smooth roads, and with the well broken animals used in England than it is in lands where long journeys over rough



Dog Cart.

roads with half broken ponies are of daily occurrence.

DOG CARTS

The Dog cart in its modern shape is a comparatively recent invention. It was originally a very high cart, which, about the year 1817 had been raised to an elevation which excited the ire of Dr. Edgeworth, and which gained it the name of the "suicide" in Ireland, where it appears to have found particular favour. The wheels were high and the driver's seat was raised on lofty springs above the undercarriage; there was a separate seat for the groom, which was raised three feet higher than that of the driver.

The first dog carts, properly so-called, were much more practicable vehicles, being constructed for the purpose indicated by their name—to enable dogs for shooting or other purposes to be conveniently carried. They were seated for four, and were roomy, comfortable traps with space under the seats, where a brace of pointers or other dogs could lie at ease; the sides of the cart were made with Venetian slats to provide

ventilation, the seat cushions being frequently furnished with long flaps falling from the seat to near the floor of the vehicle.

The "dog cart," properly so-called, has quite outlived the purpose for which it was designed and from which it received its name. A conveyance adapted for the comfortable carriage of dogs ceased to be of practical utility when pointers and setters ceased to be used for partridge and pheasant shooting.

The modern dog cart is constructed in endless variety of shape and detail: essentially an English vehicle, English makers have no rivals as builders of dog carts. The fashion changes frequently so far as the general lines of the vehicle are concerned. Ten years ago lines upright rather than sloping seemed most in favour; deep panels banished the lightness of appearance which was the vogue at an earlier period; the top sides curved outwards and in some cases nearly overhung the wheels.

The tendency of the present day appears to revert to an earlier shape; the cart built on sloping lines is frequently to be noticed and the panels are often more or less open instead of being solid. In one respect the

dog cart of to-day very generally follows its predecessor of ten years back ; the taste for a low vehicle set well down upon the wheels has replaced that for the high dog cart formerly so popular.

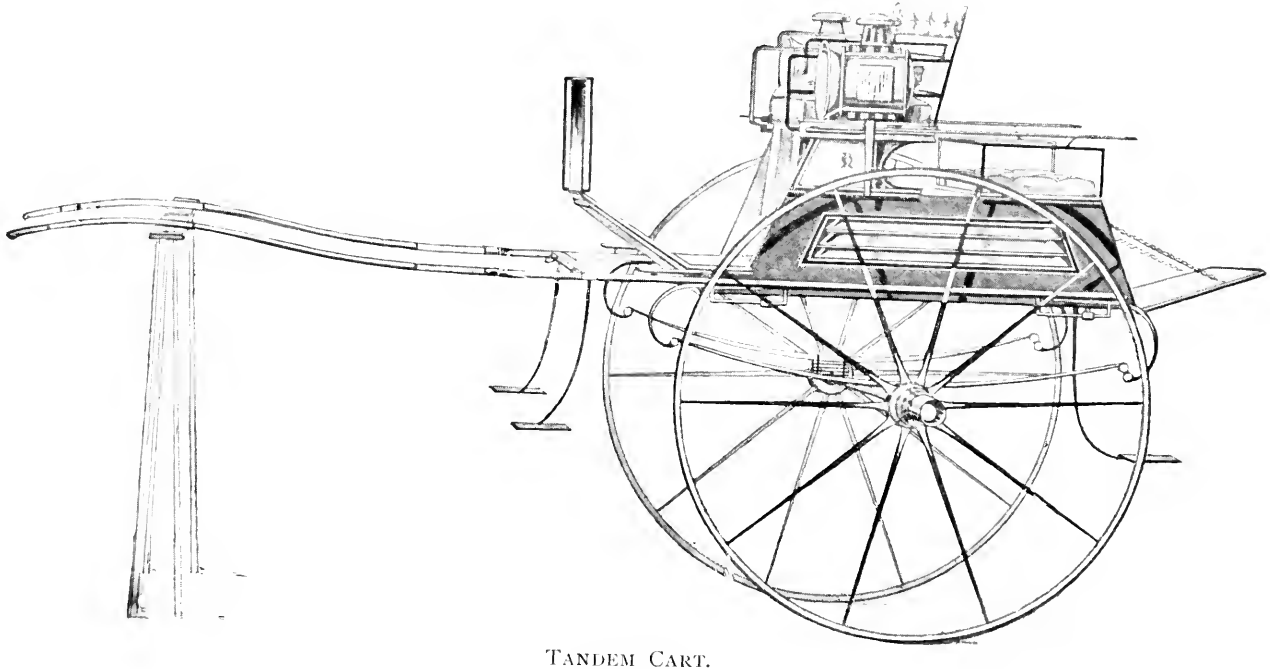
The low dog cart has much to recommend it ; a cob or pony is required for it instead of a horse ; it is easier to enter and leave, and is no doubt a safer conveyance ; but it cannot be denied that the high dog cart of an earlier day, with its "gate" panels and rakish backward slope of line, when drawn by a hunter-like stamp of horse, had a sporting air about it which the lower hung vehicle cannot boast. The high dog cart was an ideal turn-out for the country ; the occupants being raised well out of the dust and able to see over the hedges.

Much ingenuity has been expended on appliances whose purpose is to increase the comfort of the dog cart. The "fulcrum shafts" patented sixty-five years ago by Fuller of Bath and Hayman of Exeter, marked a great step in advance ; these shafts do away with the "knee action" or rocking motion which was formerly the greatest objection to vehicles of the dog cart pattern. Seated for four persons the difficulty of balance is—when the cart is

required for two on the front seat, or for three—overcome by one of several devices. Messrs. Maskey and Co., of Warrington, in 1883 patented a "Lever Balance," whereby the driver, by working a lever at his side, can move the whole body of the cart forwards or backwards to adjust the weight. A device on the same principle, invented by Mr. Hooper's firm, acts only upon the seats, which are fitted with slides for easier movement.

Dog carts are hung in various ways; the usual method is on two side-springs, but three springs and four are employed in some vehicles.

Of the TANDEM CART there is little to be said; it differs from the ordinary Whitechapel chiefly in the height of the driver's seat which is elevated to give the needful control over the leader. This alone, of all forms of dog cart, remains high. Perhaps the smartest tandems are to be seen at the annual meet of the Tandem Club in Hyde Park. Driving either horses or ponies tandem fashion has always been a popular amusement and deservedly so; there is no more severe test of driving skill than a tandem affords, and the whip who can handle one well should find it an easy matter to drive any team.



TANDEM CART.

The increasing popularity of Polo was the means of producing the low dog cart called the POLO CART. It is hung low, is roomy and comfortable, and is easily drawn by a pony of 14 hands; it was in point of fact built as a vehicle in which the polo pony might be used for harness.

RALLI, BATTLESDEN, AND GOVERNESS CARS.

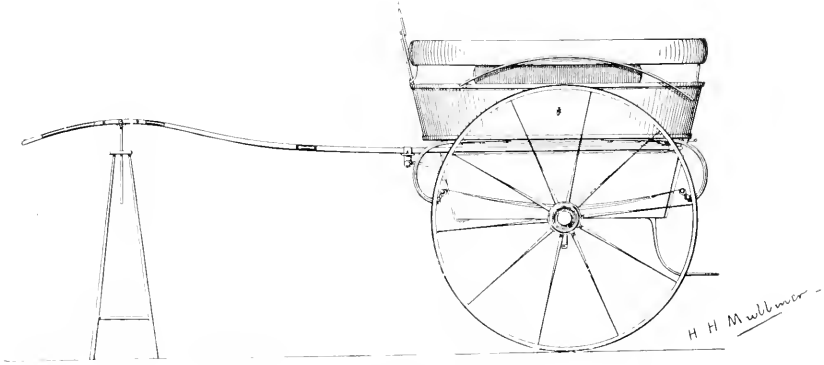
The Ralli and Battlesden Cars enjoy a measure of popularity, more particularly the former; but of all recently invented two-wheeled vehicles none has gained so much acceptance as the Governess Car. This can hardly be considered a variation upon the gig or dog cart; it is essentially a low hung, safety carriage particularly well adapted for the use of children in charge of nurse or governess; whence its name.

These cars are built in all sizes; they are to be seen drawn by the 14-hand pony or the humble donkey, and of all vehicles are the most suitable for their purpose, the safe conveyance of young children in the fresh air.

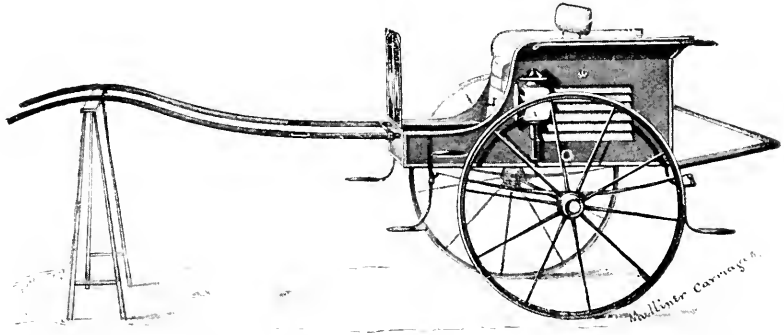
The Princess Car, designed in 1893 by Messrs. Taylor of Ipswich, is in some respects an improvement on the governess

car. This carriage, whose general outline resembles the older vehicle, has no door at the back and thus more sitting space is provided. It is entered from the front by a step; a distinct advantage when the roads are wet and muddy. The driving seat is arranged on a slide, whereby it can be moved forwards or backwards to adjust the balance; and it also enables the driver to sit facing the horse instead of sitting sideways as in the governess' car. The seat is so planned that the passengers can enter or leave the car without disturbing the driver. Notwithstanding its advantages this car is seen rarely by comparison with the "governess."

The Battlesden cart was, until very recently, one of the most popular of two-wheeled vehicles, and deservedly, for it had much to recommend it, being at once light for the cob or pony required to draw it, easy running, and comfortable for the occupants. This build appears to have gone out of favour of late years having been supplanted by the low dog cart, polo cart, or panel car, more compact and perhaps smarter looking vehicles, but of which none afford the space and carrying capacity of the Battlesden. This cart, the writer is



GOVERNESS CAR.



RALLI CAR.

informed, is much used in India with or without a tilt for protection against sun or rain. In that country it is constructed of polished wood and is used with a pony.

BUGGIES.

The Buggy is the name which, says Mr. Thrupp in the *History and Art of Coachbuilding*, was the name given over a hundred and twenty-five years ago in England to a light two-wheeled cart carrying only one person. The modern development of this vehicle is now called a "sulky"; the old name being applied to vehicles of a much more luxurious type.

Three examples of the C-spring buggy built by Messrs. Windover and shown at the Sportsman's Exhibition of 1884, attracted much attention; and we find their appearance at this exhibition mentioned in a trade journal as an indication of "the important position that these comparatively new vehicles, have taken in the ranks of modern carriages." The C-spring buggy is built for animals of every size, and is one of the most comfortable of vehicles for two passengers; it is somewhat heavy for its size, the leathern hood adding materially to its weight.

The buggy is very popular in India, and the vehicles built for use in that country are furnished with a seat for the native groom in the shape of a large wooden plate upheld by iron stays between the hinder ends of the shafts. The interior of the carriage is thus left free for the European occupants. The hood when raised makes the carriage somewhat top heavy, but this is the only grave objection that can be advanced against it.

The name "buggy" is very usually applied to a low hung gig with a folding head. The Duchess of Connaught had such a carriage built specially for her to drive herself in India, and this type is now called the Connaught buggy.

The Cosey Car is practically a modified buggy on a small scale suitable for a pony, and forms a very comfortable and roomy carriage for two passengers.

A noteworthy development of recent years has been the steady growth in numbers of small two-wheeled carriages of every build, excepting only the two forms that remain to be noticed. The demand for a low, fairly light vehicle that provides accommodation for two, and is within the draught power of a pony, is remarkable ; and for one dog cart drawn by a horse of 15·2 or over, fifty carts

or "cars" of one build or another are used with ponies of from 12·2 to 14 hands. This is a circumstance which should be kept in view by those who are devoting attention to the pony breeding industry, for there can be no doubt but that the market for harness ponies of good stamp will continue to increase.

HANSOMS.

The Hansom stands practically by itself among two-wheeled vehicles, the only conspicuous variation from the ordinary shape being the four-wheeled hansom which of late years has been seen in small numbers on the London streets. This carriage was originally invented about the year 1833 by Mr. J. A. Hansom, an architect, who died on June 29th, 1882; but the first hansom was constructed on lines differing somewhat from the modern carriage, which, in addition to structural alterations, is fitted for the comfort and convenience of the passenger with various appliances which were unknown in the original vehicle.

Mr. Hansom's invention had very large wheels and the body was differently shaped, as we may see in John Leech's drawings; the "safety" element consisted in such an

arrangement of the framework, that the cab would not upset if tilted up or down. The method of suspending the body was, however, substantially the same as that still employed.

Mr. Hansom's "patent safety" superseded the quaint-looking cab on two low wheels which Mr. David Davis invented in 1823, and which, until the hansom made its appearance, was the principal public conveyance that plied for hire in the London streets. Mr. Davis' cab, appears to have had a body a little like a hansom, but smaller; the hind part of the head was stiff and solid and the fore part folded back upon it; this cab was driven from a seat fixed to the head. Another carriage which enjoyed brief vogue in the 'thirties was that described by Mr. E. N. Hooper.

About the year 1830, a light two-wheeled cab with a fixed panel top and carrying two persons inside, was introduced. The driver sat on a little seat over the off-side wheel. These carriages hung high and were dangerous if the horse fell, but they prepared the public for a faster, less cumbersome and less costly vehicle than the old coaches.

The carriage with the driver's seat at the side appears to our eyes ill-balanced and unsafe, as far as we may judge from contemporary pictures.

Mr. Boulnois' patent one-horse cab for two persons has been described elsewhere ;* and since it cannot be regarded as the parent of any modern vehicle it calls for no further notice here.

The modern hansom is the combination of improvements devised by many ingenious builders. Mr. Evans, of Liverpool, and Mr. Marston, of Birmingham, contributed to the amenities of the vehicle, but the name of Forder is that with which the hansom now in use is most intimately associated.

In 1873 the Society of Arts offered a prize for the best two-wheeled public conveyance, and this was carried off by Messrs. Forder, of Wolverhampton, with a carriage described as "marking a new era in street vehicles." Forder's hansom showed how the weight of the cab could be reduced by the use of better material and workmanship.

Wheels, undercarriage and body were all made lighter, and the interior fittings were neater and more comfortable. The general character of the vehicle was so greatly improved that its merits attracted the appreciative attention of foreigners, whereby an export trade became established.

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* *Early Carriages and Roads.* By Sir Walter Gilbey, Bart. Vinton and Co., Ltd. 1902.

At the Horse Show held at Islington in 1877, a form of hansom called a two-wheeled brougham was exhibited by a Peterborough builder ; the principal advantage claimed for it was that by a novel arrangement of transverse springs a lady could enter and leave the cab without bringing her dress in contact with a dirty wheel. This cab was so built that the horse was brought nearer to his work : whether this were an improvement or not is a debatable point.

The Floyd Hansom, which was shown at the Sportsman's Exhibition of 1885, offered several improvements. This carriage was thus described in the *Coachbuilders', Harness Makers', and Saddlers' Art Journal* at the time.

Three specimens of the Floyd Hansom were shown and attracted attention by the peculiar substitute for the ordinary front light with its awkward hinged action. The "Floyd" had a front hood or calash framed and glazed, fitting inside the body. It was pivoted at the front of the elbow so that when let down by the driver it swung forward nearly to the dasher and below the level of the door tops. The glass top and side afforded ample light and a thick roller curtain served, if needed, to secure draught from below, by filling the space from dasher to top of door. The improvement in comfort and convenience was manifest, but how far this is counterbalanced by increased cost, weight, liability to rattle and probability of broken glass, experience must determine.

This vehicle, exhibited by Messrs. Burn and Company, was intended not to ply for hire, but for private use ; and was beautifully finished and fitted. In addition to the usual small mirrors and fittings which were of ivory, the Floyd hansom was furnished with a parcel rack inside, an electric bell to signal to the driver, a watch in a neat brass case, and ingenious receptacles for stick or umbrella. The side windows were made to open, as were two small windows in the back of the cab ; the rein rail, &c., were of brass. The head, when let down, practically increased the length of the body of the cab.

With all its advantages and improvements the Floyd never gained any great popularity, though a few cabs built on this model were to be seen in London in the 'eighties ; it is probable that the objections foreseen by the writer of the paragraph quoted above proved greater than the convenience gained.

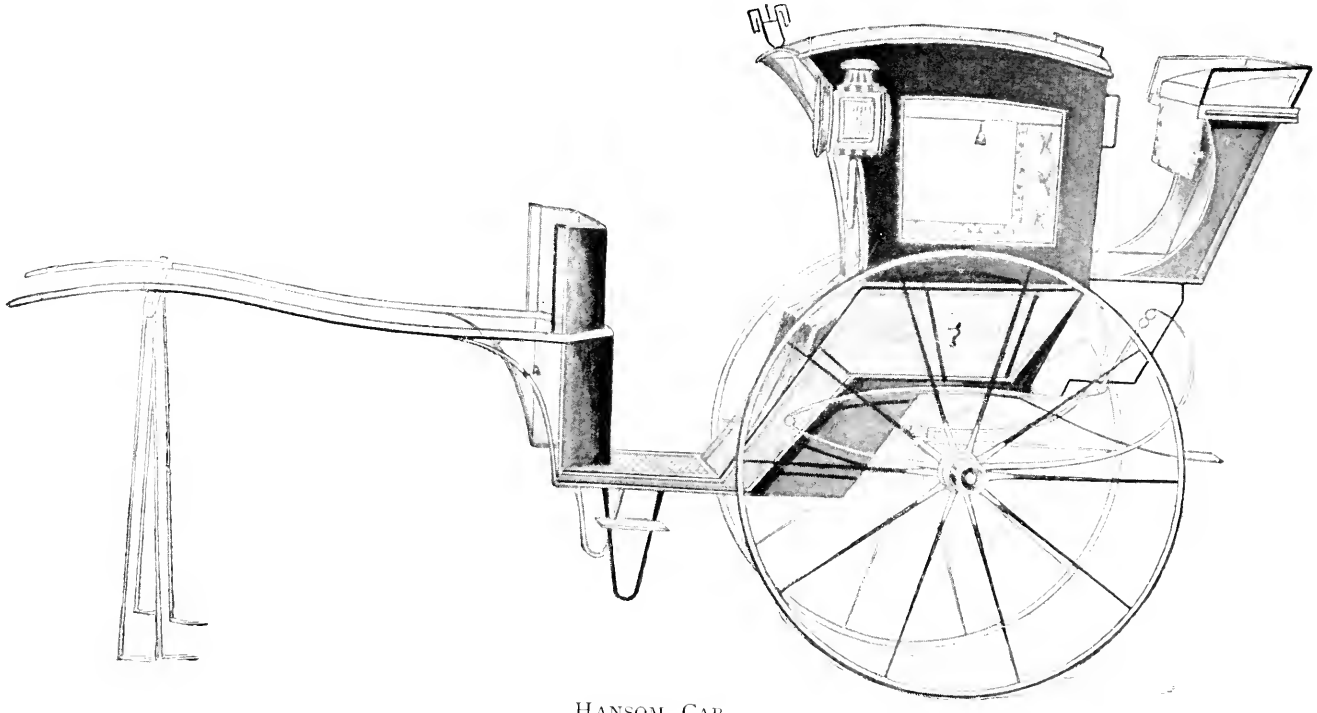
At the Horse Show held at Olympia, West Kensington, in 1889, Messrs. Manton of Birmingham, showed a hansom with a leathern head or hood, which could be raised or put down as required. The hansom with a movable head, however, has never come into general use.

The "Arlington" cab, invented and patented by Mr. Knight of Dorchester, is contrived on the principle of the hansom, but has some peculiar features of its own. The system on which the front windows of the ordinary hansom is fitted, whether on the hinged principle or slide and hinge plan, leaves something to be desired; and much ingenuity has been expended on this part of the vehicle alone.

Mr. Knight's invention included a bold attempt to grapple with the difficulty and was largely successful. He replaced the half doors set at an angle, with upright doors reaching from floor to roof; these were fitted with sliding glasses in the top part after the manner of an ordinary brougham door.

The doors, meeting together in the centre when closed, form a half circle, and to open them the passenger pushes each into a slide on either side of the body, which is curved to admit of this. The doors can also be opened and closed by the driver. It should be mentioned that Messrs. Forder were the first makers to furnish their hansoms with the apparatus which enables the driver to open and shut the doors.

Mr. Knight's Arlington Cab offered



HANSOM CAB.

advantages which have secured a certain amount of acceptance for it; the vehicle is easy to enter and leave, and the upright doors afford more space to the occupant. It is worthy of note, too, that with his improvements Mr. Knight contrived to considerably reduce the weight of the cab; it scales only 8 cwt.

Another improved hansom is the invention of Messrs. Horsley. This vehicle was exhibited at the Islington Cattle Show of 1896, and its chief claims to notice were its lightness and the low suspension of the body. Two-thirds the weight of an ordinary hansom, it could be drawn by a 14·1 cob, and the floor was brought so near the ground that the usual step was not necessary, the passenger stepping without effort from the curb into the cab. The seat of Messrs. Horsley's hansom was wide enough for three persons.

Messrs. Thorne, in 1887, produced a very light and comfortable carriage which they termed a "brougham hansom"; though its main lines of construction differed essentially from either carriage. This afforded sitting room inside for three or four; it was entered at the back, and when the door was shut, a seat across it was so arranged that there was no possibility of the door opening

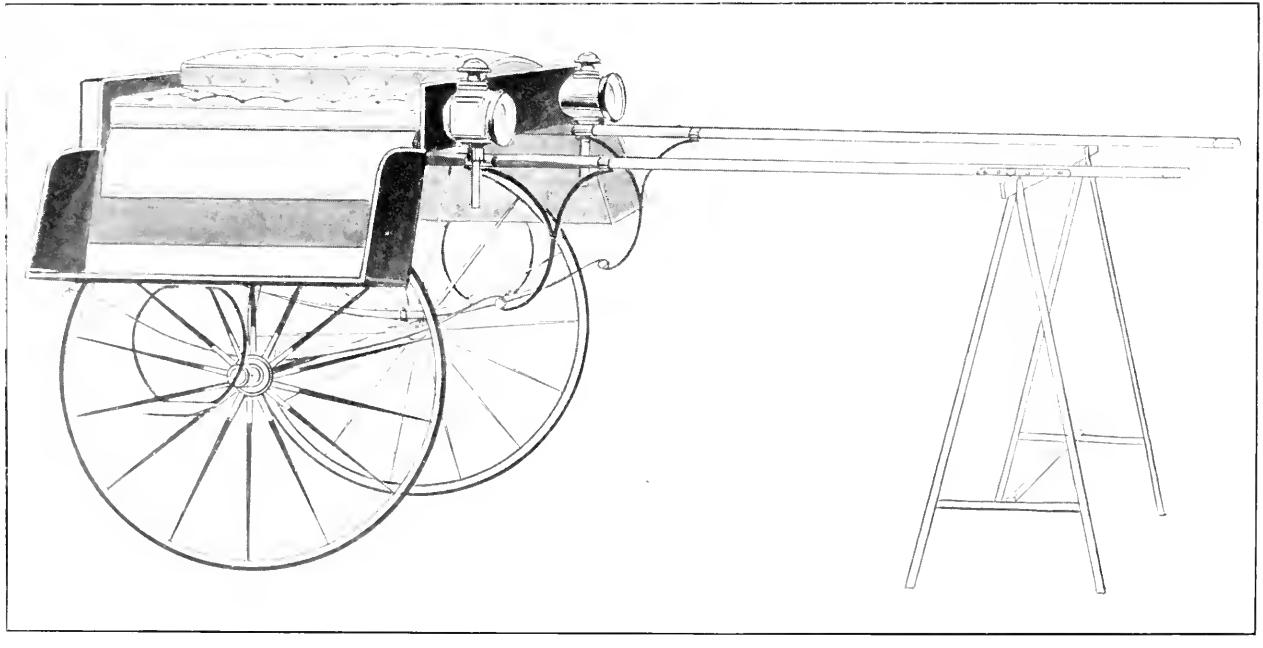
till the occupants' weight was off the seat. The driver's seat was in front, on the roof of the vehicle.

The method of suspending the hansom varies. Many are now hung on C-springs; the "Dennet" system, two side springs and a cross spring is very generally employed, and less commonly, the body rests on two side springs. The ordinary hansom is considered a model carriage so far as suspension is concerned, for the load is just above the axle. Everybody knows that the hansom, by reason of its steadiness, is an exceedingly comfortable conveyance; there is no vehicle that runs more easily, particularly when the load is truly balanced.

THE IRISH CAR.

The Irish Car is peculiar to Ireland and an example of this vehicle is but rarely found on this side of St. George's Channel. The wheels are very low and are concealed as far as the axle boxes, or farther, by the panel of the footboard, which panel is hinged to the edge of the "tray," either side of which forms the seat, to allow of its being turned up when not in use.

Private cars are usually fitted with a



IRISH CAR.

small seat in front for the driver; the average car that plies for hire, however, more often than not, has no such provision for his convenience. The seats are somewhat narrow, a fact which makes this vehicle rather uncomfortable when more than one passenger occupies each side, and renders the position of the unexperienced occupant insecure when the car is driven fast round corners.

The "well" sometimes found between the seats is useful for small packages, but heavier baggage must be roped firmly on the movable lid of the well. The advantages of the "outside car" are that it is cheap; it is light enough to be drawn easily by a 14-hand pony; it is well balanced, is not easily upset, and is easy to enter and leave; altogether it is a very useful vehicle for travel on rough and hilly roads.

The objections to it are numerous. Its width is sure to cause the novice who, unwarned, drives it for the first time, to come into collision with other vehicles and gate posts, but this peculiarity is soon realised. Its greatest objection is that the passenger is at the mercy of the wind and rain of the wettest climate in Europe; to indulge in the

occasional change of posture comfort requires on a long drive, and at the same time to keep the body and legs dry under mackintoshes and rugs, is an art only to be acquired by long apprenticeship.

With all the faults which users other than Irishmen discover in the car, the modern vehicle is a great improvement on that in use forty years ago, and less, in out of the way parts of the country. The wheels of the older car were even lower ; the body was hung lower and the shafts had an upward pitch in front which imparted a slant to the seats whereby the passenger continually found himself "drifting" back upon his seat-companion or the car rail. Many of the cars now in use in Ireland have the same defect.

Dr. Edgeworth, who wrote in the year 1800, describes a very primitive Irish car which was the "common vehicle of the country" during his day. It consisted of shafts with cross-bars ; two low wheels of solid wood were wedged on to the axle tree so as to form one piece, like a railway axle and wheels ; the wheels were closer to one another than the shafts, and the axle projected to revolve in sockets placed under the shafts. Such a car "cost only four guineas,

including painting; they would follow the horse anywhere, they could scarcely be overturned even with bulky loads, they were light and easily moved by hand, their repair was easy, and they lay so near the ground that they could be easily loaded and unloaded; the whole would turn in a very small compass."

These vehicles were the primitive cars of Ireland, and certainly it would be difficult to imagine one more simple and elementary; it may be conjectured too, that the outside car for passengers was evolved from the vehicle.

Four-wheeled outside cars have already been referred to.

The costermonger's barrow, though frequently used as a vehicle for passengers, is primarily a cart for the conveyance of goods, and as such cannot be considered to come within our purview.

FITTINGS OF CARRIAGE.

Having now glanced at the various builds of carriage which have been used within living memory and are in use at the present day, we may turn our attention to some of the more important details of carriage equipment, &c.

INSIDE FITTINGS are entirely of French origin. In early days a few of the more enterprising coachbuilders who paid periodical visits to Paris in search of novelties, used them sparingly in their vehicles; but after a time they came to be considered indispensable to the proper equipment of a properly appointed carriage. This recognition of the additional grace and finish imparted by fittings was somewhat slow of growth, but the Paris Exhibition of 1867 and yet more markedly that of 1878, gave an impetus to this department of carriage building in England.

One of the official reporters at the latter exhibition laid stress on the superiority of the French in this respect, but he added that "English coachmakers assert, and with some show of reason, that as they can get as much money for a carriage without interior fittings as with them, it is not worth while to throw money away on them."

During recent years much more attention has been bestowed on these details; electric lights for the interior, improved means of communicating with the coachman as well as receptacles of various kinds and other conveniences, are to be found in many carriages.

UPHOLSTERY.

As regards upholstery the Royal Commissioners, in their report on the Paris Exhibition of 1878, said that French carriage laces were exported in large quantities to England before the Franco-German war. The stoppage of the industry brought about by the war was instrumental in establishing it in London, where it has been carried on ever since.

It has long been an article of faith among the friendly critics of the English coach-building industry that the one department in which we allow ourselves to be beaten by foreigners is in the upholstering of our carriages. France has always taken the lead in this; we have been content to follow at a distance, making no advance except when it has been almost forced upon us.

One radical change there has been since about the year 1870; that is the complete disappearance of silk for linings (save in State coaches) and the substitution of morocco leather usually with a dull grained surface. This is an undoubted improvement, regarded both from the artistic point of view and the practical; leather coverings look smarter; they are more in harmony

with the purposes of a carriage, are more easily cleaned and wear better.

Reversible cushions having one side covered with cloth and the other with leather are much used.

Spiral springs of thin steel wire, to increase the comfort of cushions, are quite a modern improvement. It would be possible to trace the introduction of such modern improvements as concealed hinges, self closing locks, &c., &c. ; but patents for such accessories are numerous and it does not appear necessary to do more than refer to these fittings which contribute to distinguish the carriage of to-day from that of forty years ago or less.

PAINTING.

It was stated in the year 1884 that while considerable progress had been made in the manufacture of carriages, little progress could be recorded in the matter of painting. Improvements had been made in the dry colours but the process of application to the carriage showed little advance and remained a tedious business requiring considerable time. Fashions in carriage painting vary greatly from year to year.

STEPS.

Steps, though less important adjuncts in these days than they were at a period when the carriage body was always suspended high above the ground, have received a good deal of attention. In 1885 Messrs. Greer and Harrison patented the "Perfect" step, an iron grid covered with rubber to prevent the possibility of slipping.

Folding steps are still used in carriages hung high, but these are ingeniously contrived so that when folded they are pushed under the body and fill so little space as to be practically unnoticed. The brougham, sociable, landau, and other carriages entered between the wheels are usually fitted with step-covers attached to the doors which protect the tread from the mud thrown by the wheels.

LAMPS.

Lamps were first used on carriages about two hundred years ago. Lord Darnley's chariot in the South Kensington Museum is the earliest carriage known that is fitted with lamps; this vehicle dates from about 1700.

Fashion largely rules the size and shape of

carriage lamps, but variation is restricted by the necessity for their fulfilling certain obvious requirements; they must be light, be unaffected by the vibration inseparable from rapid motion and afford a strong and steady light.

The shape is one of four, namely, square, octagonal, circular and dial or clock face: the last is considered the best for illuminating purpose, the square ranking next; the large dial lamps used on drags give the best light of any carriage lamp. These were brought to perfection by Mr. Johnson of Edinburgh and were for many years known as "Scotch Dials."

BRAKES.

Brakes in a practical form were first applied to private carriages about 1860-65; brakes of a kind were occasionally fitted earlier than 1860 but they were of little use. Carriages hung on C-springs offered peculiar difficulties to the effective application of any form of brake other than the chain and shoe. In 1890 Mr. F. Shanks invented a method of applying the pedal brake to C-spring carriages which overcame the obstacles. Rubber brake blocks, largely used in all forms of carriage were

invented by Mr. I. Offord some twenty years ago.

In England the brake is generally operated by a lever working in a toothed rack at the side of the driving seat; in France and other continental countries a wheel and screw attachment is preferred; the latter is the easier to work, but has never found favour with us, probably because the lever is by far the neater appliance.

One of the most important additions to the street omnibus is the brake which the driver works by means of a foot lever.

WHEELS.

A book might be written on Wheels without exhausting the subject. Solid wooden wheels, which were doubtless the earliest made by man, are still used in Eastern countries, Burma, China and Japan, and, to come nearer home, in the wilder parts of Ireland. The Egyptians made spoked wheels 2,800 years ago and this ancient pattern of wheel held its own unimproved down to within comparatively recent years.

One of the chief improvements has been the substitution of an all-round tire for the old straked tire, *i.e.*, a tire made in sections

and put on so that the joins met in the middle of each felloe. Oak, from time immemorial, has been used for spokes; ash is held the best for felloes, but elm or beech is sometimes used; elm is used for the stocks.

Modern wheels are always "dished," *i.e.*, the spokes are set into the hub at a slight angle, and revolve upon an axle arm which is "pitched" or bent downwards. The object of making wheels thus, instead of flat as in old days, is to save them from wear and tear. How dishing accomplishes this end and why axles are pitched, Mr. Thrupp lucidly explains in his *History of Coaches*.

The tendency of a wheel is always to become upright, and when it becomes so by the gradual hammering out of the tire to a greater length and gradual sinking of the spokes further into the nave and rim by wear and tear, then the wheel goes to pieces. If anyone will watch the manner in which the materials of a mop become straight as it is twirled round, he will understand that the same centrifugal force compels wheels to become upright. Secondly, as a wheel runs along a road it is forced from side to side by the uneven surface, the uneven draught of the horses and the rapid motion, which latter frequently causes the wheel to jump over the road instead of pressing equally over all its circumference. Then we dish our wheels, not only to keep the tire tight as long as possible, but also to resist the lateral thrust which in a perfectly upright wheel would soon force the spokes out of the naves. . . . We pitch the arms of the

axles for two reasons: first in order to keep the box of the axle pressing against the strong shoulder instead of against the weak linch-pin and secondly because the wheels when they run wider at the top than at the bottom on the road will throw the mud away from, instead of into, the carriage or on the panels.

The American spider wheel is the one exception to the rule of dishing carriage wheels. It is not necessary to dish these because the spokes, being made of elastic wood and no thicker than a man's finger, bend under the lateral thrust and recover their straightness when the pressure is removed; were the unyielding oaken spoke subjected to this strain it would soon work loose from nave and rim.

Up to recent times the rule was for coach-builders to make their own wheels of English grown timber, but wheel making in our carriage factories was rapidly becoming a thing of the past fifteen years ago or more. The several parts of wheels, spokes, rims (which have replaced felloes), stocks turned and morticed, are now imported from America, and being light and made of well-seasoned and reliable timber, a trade which scarcely existed thirty years ago has reached large dimensions.

Spokes of hickory are replacing those of

English oak to a considerable extent. The use of improved machinery and the vast quantities of timber in America give our transatlantic cousins advantages in this department, but it is only fair to say that patents for improvements in wheels have been far more numerous in America than in England.

Light wheels are essentially American, but for their heavier carriages builders in the States use wheels on much the same plan as English carriage builders. The bicycle wheel was first applied to a carriage about the year 1881, if we may accept as proof reference in a trade journal of that year to a "novelty" in the shape of a light description of gig hung on bicycle wheels on the tension principle. These wheels have since been used in four-wheeled carriages, the London Coupé Company's broughams are all mounted on such wheels.

INDIA-RUBBER TIRES.

From wheels, we naturally turn to india rubber tires, consideration of which involves reference to the use of rubber in other parts of a carriage in the endeavour to procure the result finally obtained by the rubber tire.

No modern improvement in carriage building has done more to enhance our comfort than the application of india rubber to wheels in the form of tires. It is not strictly correct to describe the rubber tire as a "modern" improvement, for so long ago as the year 1846, the pneumatic tire, on the principle of that used to-day on the bicycle everywhere, and on carriages in France, was patented by a very able civil engineer, named William Thomson, who died some thirty years ago.

Earlier than 1846 the idea of using rubber to minimise the jar and vibration of a carriage occurred to Messrs. Walker and Mills who, in 1843, patented a method of setting the body of a vehicle on four inflated rubber cushions, one over each spring. Though these cushions did much to absorb vibration, their lack of elasticity so qualified their success that their use was soon abandoned.

In the year 1852 Mr. Uriah Scott patented a device whereby a band of india rubber was placed inside the hub of the wheel; and this was superseded by a French invention, which in its turn was discarded in favour of Cowburn's patent insulating rubber axle and spring box: it should be added

that Mr. Scott followed up his first patented application of india rubber by protecting a system of tiring with india rubber which had been hardened by the chemical action of sulphur. The time, however, was not yet come for rubber tires to be generally adopted, even in the towns, wood-paving being in comparatively little use.

For many years coachmakers were occupied in devising the best method of applying india rubber to the under works of carriages in such manner as to break the jar and vibration caused by its passages over rough roads, but up to the beginning of 1880 their ingenuity was rewarded with little success.

The substance was largely used in the construction of wheels but at the time mentioned (1880) attention was centred on the application of rubber to the axle tree ; and in 1883 we find that two improved axle trees, one an American invention, were in use ; each depended upon a rubber collar for its efficacy ; the American invention fitted the collar inside the axle box, encircling the arm of the axle ; in the other the collar fitted round the square of the axle within the axle clips.

The "Moss Wheel," originally produced as the "Moss spring wheel," was exhibited

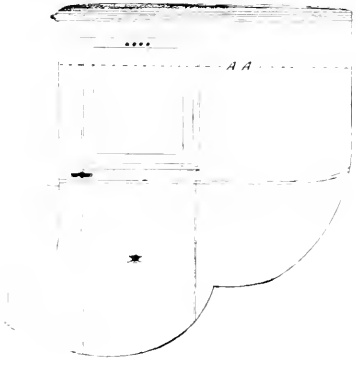
in its new form in 1883 at the Sportsman's Exhibition. The springs in the new wheel were entirely dispensed with, and the inventor made india rubber the distinguishing feature of his new device; over an inner tire which was fitted upon the wheel in the usual way, he laid a thin strip of rubber, thickened considerably at the points where the spokes entered the felloes; and over this rubber tire an outer flanged iron tire was fitted. This device was then considered superior to any rubber tire then made, and in a modified form is sometimes applied to carriages at the present time. The modified form referred to consisted of a thick rubber tire into which squares of iron were inserted to relieve the rubber of the inevitable wear and tear contingent upon use on macadamised roads.

At the Sportsman's Exhibition of 1884, growing interest in the application of india rubber tires as a means of deadening sound and preventing vibration was manifest from the number of vehicles shown with tires of this description. Two years later Mr. G. N. Hooper, in a paper describing the vehicles shown at the Colonial and Indian Exhibition of 1886, remarks on the circumstance that "not a single Colonial carriage of any kind is provided with india rubber tires."

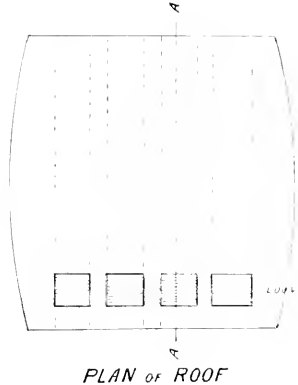
During the two preceding years Carmont's patent had solved the difficulty of securing the rubber upon the metal tire and the improvement of the London streets, in the shape of greatly extended wood paving, had brought the rubber tire into general use. To Mr. Carmont we owe invention of the steel channel, which carries the rubber tire, and the machinery for rolling it; whereby the cumbersome appearance and difficulty of attachment were largely overcome.

The cost of the rubber-tired wheel is admittedly greater than the wheel tired with iron or steel, but the advantage gained is so great that by 1898 a private carriage without rubber tires was quite the exception, in London at all events; and the majority of hansoms standing for hire in the streets were similarly equipped. The Shrewsbury and Talbot Company were the pioneers in thus applying the latest great improvement to hackney carriages.

There is a great difference between the rubber tires first applied to carriages and those now used; the present stage of excellence has only been attained by gradual steps, the "wired on tire" is perhaps the most popular, the tire is composed of pure rubber throughout, whereby the greatest



CARRIAGE FRONT



PLAN OF ROOF

SECTION A A

System of Ventilating Closed Carriage without Down Draught.

See page 25.

degree of resilence is obtained. Messrs. Pfeil, Stedall and Co., a few years ago patented a method whereby the tendency of the rubber tire to "creep" was corrected.

In 1895, high authorities in the coach-building world predicted that the pneumatic tire would be that of the future; the Shrewsbury and Talbot Company were so impressed with its advantages that they patented a tire made on this principle and applied it to their hansoms. The pneumatic, however, has never superseded the solid rubber tyre on horse-drawn carriages.

In his address to the Institute of British Carriage Manufacturers, in 1901, the President remarked that six years before, when addressing the Institute, he had expressed his belief that there was a great future for pneumatic tires, but that his confidence had not been justified by events. He was unable to understand why so few of these were to be seen in England as they were very largely used in France.

It is probably that the bulk of the pneumatic tire, which is by no means attractive to the eye, combined with its greater cost as compared with the solid tire, explains its unpopularity.

AXLES.

The Axles used in English carriages are the "Mail" axle and that known as "Collinge's," after the inventor, Mr. John Collinge, who patented it in the year 1811. Mr. Hooper says, "Since John Collinge brought out his patent on March 9, 1811, great improvements have been made. Whether axles are as perfectly made now as they were in the latter days of Collinge is doubtful; many authorities say they are not." Collinge's is the best finished and cleanest axle in use. The mail axle was that used on the old stage coach, and was held the safest kind known. It is case-hardened with bolts on the nave and a cup on the front of the box to contain oil.

Axles are made much lighter now than they were in former days, but breakages are seldom heard of: an axle should simply bend when the strain comes upon it. If an axle tree breaks bad workmanship is indicated. Axles with ball bearings have been applied to carriages, but never with any degree of success. Hinged axles to facilitate the turning of carriages were first invented by Mr. R. Ackermann, of London, in 1818: Mr. Rock, of Hastings, in 1850, and Mr. P.

Herdie, an American, about 1880, patented improvements upon Ackermann's axle.

Hinged axles are unknown in present-day practical carriage building; ease of turning is attained by the "fifth wheel" and where needful proper shaping of the carriage to allow the front wheel to go under it: as in the "arch," between the box of the brougham and the body.

SHAFTS.

Shafts for two-wheeled carriages are usually made of lance-wood. For four-wheeled vehicles, elasticity and spring being less essential, tough English oak strengthened with iron plates is employed. Straight shafts have been made of hollow steel or wrought-iron tubing. The writer in *All the Year Round* for 1866, quoted on previous pages, referred to the substitution of wrought-iron hollow tubes for wooden shafts as "the greatest modern improvement," their greater strength, the ease with which they could be shaped, and the fact that if broken they could not, like the wooden shaft, splinter and wound the horse, were the great recommendations urged for them, and they appear to have been used only for four-

wheeled carriages. Hollow steel shafts are light, strong and cheap: the objection to them is that if accidentally bent they are difficult to straighten again. The invention of fulcrum shafts has been referred to in connection with the gig.

SPRINGS.

The varieties of SPRING in general use are few, singularly few by comparison with the vast number of springs which have been patented. Mr. Wm. Philipson, in his prize essay on the *Suspension of Carriages* written in 1889, divides the springs in practical use into three classes: (1) Simple forms, (2) varieties, (3) combinations; and we cannot do better than quote from his pages:—

"SIMPLE FORMS.—The simplest form in ordinary use is the *Elbow Spring*. This is seldom found alone, but mostly in the combination known as the Tilbury and Five Springs. When used alone it occurs in such places as the front of a Tilbury gig, connecting the body with the shafts.

"The double form of elbow spring, known as the *Grasshopper*, *Horizontal*, *Half-elliptic*, *Double-elbow* or SIDE SPRING, is more generally used. The advantage of this spring

over the preceding one is that the weight, being applied at the end of each arm, it balances on an axle or other support; it then forms an easy connection between body and axle.

"The third kind is the Elliptical Spring. It gives more ease than the *Grasshopper*, or *double Grasshopper Spring*, as the jerks from obstacles on the road are twice removed. It is more generally used than any other spring. The following distinctions may be drawn between the above three springs.

"*An Elbow Spring* has the load at one end only, and is supported at the other.

"*A Side Spring* has the load at both ends, and the support in the middle.

"*An Elliptic Spring* has the load either exactly above or below the support.

"From these three springs and their varieties are obtained all the combinations of springs that are to be found in daily use.

"VARIETIES.—The varieties of the *Elbow Spring* are the *Cee Spring* and the *Whip Spring*. Most authorities consider the Cee spring a separate spring, but it is the same in principle; the only difference between it and an elbow spring proper is the shape—the springs being fixed at one end and the weight applied to the other. The ease of

the old Cee springs is due to the swinging of the four leather braces, rather than to the springs themselves. In fact, the Cee springs are generally made so stiff that they play very little."

After warning coachbuilders against copying the Cee as the ideal form of spring, and passing reference to certain new forms, Mr. Philipson proceeds :—

"COMBINATIONS.—The simplest combination, known as the Telegraph or Platform Spring, consists of four grasshopper springs, two being put on the sides, and two across, the side and cross springs being connected by means of cross shackles. The cross springs are fixed to the body and carry the weight direct, and the side springs are fixed to the axle and carry the weight through the other springs."

The advantage of this combination over two ordinary elliptic springs, in which we have the body removed to the same extent from the shock and jerk of the wheels, is that it is easier and allows of more side sway. This extra sway motion of platform springs is very awkward and dangerous when the front carriage is locked round, the body being apt to sway too much on the side to which the lock is turned, and

to cause the carriage to overturn if care is not taken.

This fault, however, does not much affect four-in-hand coaches and mail phaetons, which are hung on three springs, as they generally have very little lock; and the advantage that they possess over elliptics of allowing the body to be hung nearer the ground, and therefore less top heavy, more than counteracts it. Platform springs are generally used in gigs (which are then known as *Stanhope* gigs), four-in-hand coaches, and mail phaetons; they are also sometimes used at the back of a landau or omnibus.

"The combination of *three* grasshopper springs, two side and one cross, is known as the *Dennett* Spring. Here the front ends of the two side springs are attached to the body, and the hinder ends to the cross spring. The action of this combination is the same as the platform springs, but only having three springs it is not so perfect. The system is found used in gigs (then known as Dennett gigs), Whitechapels, dog-carts and hansoms, and also in some wagonettes and omnibuses.

"The combination of two elbow springs and a cross spring is known as the *Tilbury*

Spring. The elbow springs are fixed to the body, and carry the lead to the cross spring, which is fixed to the carriage part. This combination is not complete in itself. It is generally used in connection with two elbow springs, as in the Tilbury gig; or with a perch, as in the case of a mail phaeton, or the brougham shown by Mr. F. Mulliner, of Liverpool, at the Inventions Exhibition. In this combination we have the perfect working of both the elbows and cross springs; and for a perch carriage it must be easier than the Cee-shaped spring, in which only part of the spring works.

"The combination known as *Five Springs* is more used than any other. It consists of two elbow springs and a cross spring, which carry the weight from the body and convey it to the ends of two grasshopper or side springs fixed to the axle. The action of this combination is almost the same as the platform springs.

"Several other combinations are used in different localities, but these are unimportant."

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